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# **User Manual**

## **ETegro Hyperion RS130 G3**



## Regional EMC Compliance Information


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### USA FCC Verification Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

### Class A


 This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

### CANADA INDUSTRY CANADA

This Class B (or Class A, if so indicated on the registration label) digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe B (ou Classe A, si ainsi indiqué sur l'étiquette d'enregistrement) respecte toutes les exigences du Règlement sur le Matériel Brouilleur du Canada.

### EUROPE CE Declaration of Conformity

 This product has been tested in accordance to, and complies with the European Low Voltage Directive (73/23/EEC) and European EMC Directive (89/336/EEC).

The product has been marked with the CE Mark to illustrate its compliance.

### JAPAN VCCI

**この装置は、情報処理装置等電波障害自主規制協議会(VCCI)の基準に基づくクラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。**

English translation of the notice above is as follow:

This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI) for information technology equipment. If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

### CCC (China only)



The following CCC EMC Warning is marked on the product: EMC Warning are required for Class A products.

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰，在这种情况下，可能需要用户对其干扰采取可行的措施。

## Preface

China RoHS Declaration Table

部件名称 (Parts)	有毒有害物质或元素 (Hazardous Substance)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
机箱子组件 Chassis Subassembly	×	○	○	○	○	○
电源 Power Supply	×	○	○	○	○	○
印刷板组件 Printed Board Assemblies (PBA)	×	○	○	○	○	○
<p>○：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。</p> <p>○： Indicates that this hazardous substance contained in all homogeneous materials of this part is below the limit requirement in SJ/T 11363-2006.</p> <p>×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准 规定的限量要求。</p> <p>×： Indicates that this hazardous substance contained in at least one of the homogeneous materials of this part is above the limit requirement in SJ/T 11363-2006.</p>						

## BSMI (Tawain only)



The following BSMI EMC Warning is marked on the product: BSMI ID No and EMC Warning are required for Class A products.

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當對策。

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## Safety Information

READ THIS IMPORTANT SAFETY INFORMATION SECTION. RETAIN THIS MANUAL FOR REFERENCE. READ THIS SECTION BEFORE SERVICING.



### CAUTION!

TO REDUCE THE RISK OF ELECTRIC SHOCK, THIS SERVER SHOULD ONLY BE SERVICED BY QUALIFIED SERVICE PERSONNEL.

## RTC Battery



### CAUTION!

DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

## Power Supply



### CAUTION!

THE POWER SUPPLIES IN YOUR SYSTEM MAY PRODUCE HIGH VOLTAGES AND ENERGY HAZARDS, WHICH CAN CAUSE BODILY HARM. UNLESS YOU ARE INSTRUCTED OTHERWISE, ONLY TRAINED SERVICE TECHNICIANS ARE AUTHORIZED TO REMOVE THE COVERS AND ACCESS ANY OF THE COMPONENTS INSIDE THE SYSTEM.

## Power Supply Cord



### CAUTION!

THIS SYSTEM MAY HAVE MORE THAN ONE POWER SUPPLY CABLE. TO REDUCE THE RISK OF ELECTRICAL SHOCK, A TRAINED SERVICE TECHNICIAN MAY NEED TO DISCONNECT ALL POWER SUPPLY CABLES BEFORE SERVICING THE SYSTEM.

## Ambient Operation

This equipment should not be operated above an ambient operation temperature of 40 degrees centigrade.

## Equipment Location

This equipment can only be accessed by SERVICE PERSONNEL or by USERS who have been instructed about the reasons for the restrictions applied to the location. Access is through the use of a TOOL or lock and key, or other means of security, and is controlled by the authority responsible for the location.

## Rack Mounting of Systems



### CAUTION!

BEFORE INSTALLING SYSTEMS IN A RACK, INSTALL FRONT AND SIDE STABILIZERS ON STAND-ALONE (SINGLE) RACKS OR THE FRONT STABILIZER ON RACKS JOINED TO OTHER RACKS. FAILURE TO INSTALL STABILIZERS ACCORDINGLY BEFORE INSTALLING SYSTEMS IN A RACK COULD CAUSE THE RACK TO TIP OVER, POTENTIALLY RESULTING IN BODILY INJURY UNDER CERTAIN CIRCUMSTANCES. THEREFORE, ALWAYS INSTALL THE STABILIZER(S) BEFORE INSTALLING COMPONENTS IN THE RACK.



### CAUTION!

AFTER INSTALLING SYSTEM/COMPONENTS IN A RACK, NEVER PULL MORE THAN ONE COMPONENT OUT OF THE RACK ON ITS SLIDE ASSEMBLIES AT ONE TIME. THE WEIGHT OF MORE THAN ONE EXTENDED COMPONENT COULD CAUSE THE RACK TO TIP OVER AND MAY RESULT IN SERIOUS INJURY.



### CAUTION!

DUE TO THE HEIGHT AND WEIGHT OF THE RACK, A MINIMUM OF TWO PEOPLE SHOULD ACCOMPLISH THIS TASK.

## Typographic Conventions

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Several different typographic conventions are used throughout this manual. Refer to the following examples for common usage.

**Bold** type face denotes menu items, buttons and application names.

*Italic* type face denotes references to other sections.



**Note:**

Highlights general or useful information and tips.



**WARNING!**

Warning information appears before the text it references and should not be ignored as the content may prevent damage to the device.



**CAUTION!**

CAUTIONS APPEAR BEFORE THE TEXT IT REFERENCES, SIMILAR TO NOTES AND WARNINGS. CAUTIONS, HOWEVER, APPEAR IN CAPITAL LETTERS AND CONTAIN VITAL HEALTH AND SAFETY INFORMATION.

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**WARNING!**

Before removing the server cover, disconnect all power, unplug the AC power cord, disconnect all peripherals, and all LAN lines.

Make sure you have a stable, clean working environment. Dust and dirt can get into system components and cause a malfunction. Many of the screws on the server are different sizes; use containers to keep screws and small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging internal components. Most of the following procedures require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A grounding strap
- An anti-static pad

Most of the electrical connections can be disconnected by using your fingers. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Before working on internal components, make sure that the server power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the server's electronic components. Humid environments tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.



The ETegro Hyperion RS130 G3 server system features the Intel® Tylersburg-36D (5520) and ICH10R chipsets which accommodates single or dual Intel® Xeon Nehalem-EP (5500 series) processors.

The ETegro Hyperion RS130 G3 server system is dynamically scalable server platforms that deliver breakthrough energy efficient performance featuring three powerful model types:

- SKU 1: Support 4x 3.5" HDDs and 500W high efficiency S-PSU
- SKU 2: Support 4x 3.5" HDDs and 650W high efficiency R-PSU (supports power consumption management)
- SKU 3: Support 10x 2.5" HDDs and 650W high efficiency R-PSU (support power consumption management)

Twelve DDR3 1066/1333 slots enable you to add memory up to 96 GB. ECC support provides extra security against system failure. The ETegro Hyperion RS130 G3 Server System rear I/O ports, including two USB ports, 2+1 Gigabit Ethernet LAN ports (with one management port for IPMI), one PS2 mouse port, one PS2 keyboard port, one 9-pin serial port, and one 15-pin VGA port.

The ETegro Hyperion RS130 G3 Server System supports ESMS (Embedded Server Management System), which is a multi-function management application via embedded BMC IPMI AST2050. The ESMS includes Web Console and Advance Console for basic and advance server monitor and management. The Advance Console can support multi-server monitoring and management.

The ETegro Hyperion RS130 G3 SKU2 and SKU3 has a PSMI (Power Supply Management Interface) connector features to support power consumption management, which is based on Intel DPNM (Dynamic Power Node Management). Enable the ME (Management Engine) build in the Tylersburg chipset and select a PSMI supported power supply to monitor and manage the Power Consumption feature through ESMS. See Power Consumption Management Function to find out more about the Power Consumption feature.

IPMB (Intelligent Platform Management Bus) headers provide administrator access in case of server board failure. The IPMB connects externally through the (ICMB) Intelligent Chassis Management Bus. The ICMB is used to connect the ETegro Hyperion RS130 G3 Server Board to the outside world, providing data such as temperature, voltage, or chassis intrusion to the system administrator. ASPEED 2050 server management firmware enables the administrator to monitor the ETegro Hyperion RS130 G3 Server Board status through a typical web browser.

## Checklist

Carefully unpack the ETegro Hyperion RS130 G3 and check that the following items were included.

- One ETegro Hyperion RS130 G3 server chassis
- Two CPU heat sinks
- Rack mount rail kit
- Driver and user manual CD

Contact your vendor if some items are missing or appear damaged.

## Server System Features

At the heart of the ETegro Hyperion RS130 G3, a dual processor server based on the Intel® Tylersburg-36D+ICH10R chipset. Below are the main features of the ETegro Hyperion RS130 G3 system.

### Processors

The ETegro Hyperion RS130 G3 supports single or dual two Intel® 5500 Series processors in LGA1366 sockets.

### Memory

The ETegro Hyperion RS130 G3 has 12x 240-pin DIMM slots that can support up to 96 GB of Registered or 24 GB Unbuffered ECC or non-ECC DDR3-1333/1066/800. Please refer to Installing Memory on page 23.

### Power Supply

The ETegro Hyperion RS130 G3 SKU1 uses 500Watts 80plus high efficiency Single Power Supply while SKU2/SKU3 use 650Watts Redundant Power Supply (with one Power Supply installed).

### Mezzanine Slot

The ETegro Hyperion RS130 G3 is a specially-designed server that contains a mezzanine slot for SAS mezzanine cards.



**Note:**

SAS mezzanine card is an optional item.

### Front/Rear Controls/IO Ports

The ETegro Hyperion RS130 G3 SKU1 and SKU2 (4x 3.5" HDDs) front controls/IO ports include two USB 2.0 ports whereas SKU3 (10x 3.5" HDDs) do not have.

The ETegro Hyperion RS130 G3 rear controls/IO ports include one PS/2 mouse and keyboard ports, one ID button, one Status LED, two USB 2.0 ports, a COM port, a VGA (monitor) port, and two plus one gigabit Ethernet ports (one for management port).

### Graphics Controller

The ETegro Hyperion RS130 G3 features an integrated graphics in AST2050, which includes 8 MB of DDR2 memory.

### Other Features

Other onboard features that promote the serverboard include ESMS (Embedded Server Management System) via Web UI for server system monitor and management, an iButton slot for Software RAID 5 upgrade via LSI iButton, a mini-USB slot for customer mini -USB slot for customer internal mounting of mini-USB SSD cards, and an internal USB port for internal mounting of USB drives.

## A Tour of the System

The ETegro Hyperion RS130 G3 system comes in three SKUs. The following is a list describing the ETegro Hyperion RS130 G3 SKU models:

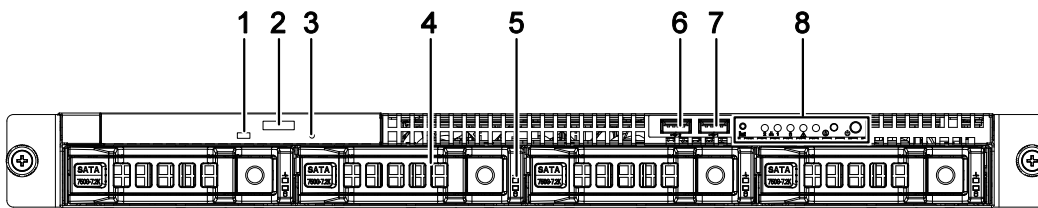
- SKU1: Supports 4 x 3.5" HDDs and 500W high efficiency S-PSU
- SKU2: Supports 4 x 3.5" HDDs and 650W high efficiency R-PSU
- SKU3: Supports 10 x 2.5" HDDs and 650W high efficiency R-PSU

The front views between SKU1 and SKU2 are the same, as seen below. In addition, the SKU2 and SKU3 rear views are also identical.

### ETegro Hyperion RS130 G3 Front Views

The ETegro Hyperion RS130 G3 system has two HDD configurations, a 3.5" (x4) HDD SKU and a 2.5" (x10) HDD SKU. See the following sections to find out more about the external features of the ETegro Hyperion RS130 G3 server.

#### Front View: 4 x 3.5" HDDs



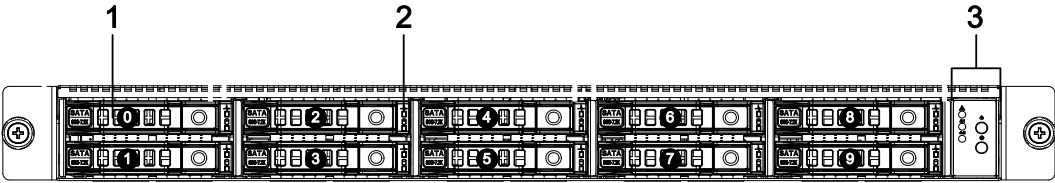
**Figure 1 - ETegro Hyperion RS130 G3 Front View: 3.5" HDD option**

- |    |                          |  |
|----|--------------------------|--|
| 1. | ODD LED                  | Power and Access LED shows status and ODD activity.                    |
| 2. | ODD Eject Button         | Eject optical media.   |
| 3. | ODD Eject Hole           | Remove optical media when the system is powered off.                   |
| 4. | HDD bay                  | Open to install a hard drive.  |
| 5. | HDD LEDs                 | Power and Access LEDs show status and HDD activity.                    |
| 6. | Front USB port           | Connect USB devices to this port.                                      |
| 7. | Front USB port           | Connect USB devices to this port.                                      |
| 8. | System Controls and LEDs | System status LEDs—see System Controls and LEDs Description on page 7. |

#### HDD Location: 3.5" SKU

QSSC-98J-1U HDD (x4) Location			
Left			Right
HDD 0	HDD 1	HDD 2	HDD 3

**Front View: 10 x 2.5” HDDs**



**Figure 2 - ETegro Hyperion RS130 G3 Front View: 2.5” HDD option**

- |    |                          |  |
|----|--------------------------|--|
| 1. | HDD bay                  | Open to install a hard drive.  |
| 2. | HDD LEDs                 | Power and Access LEDs show status and HDD activity.                        |
| 3. | System Controls and LEDs | System status LEDs– see<br>System Controls and LEDs Description on page 7. |

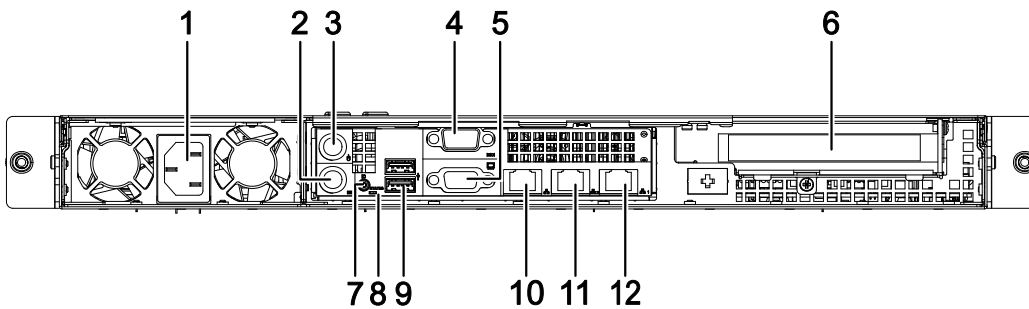
**HDD Location: 2.5” SKU**

ETegro Hyperion RS130 G3 HDD (x10) Location					
	Left			Right	
Upper	HDD 0	HDD 2	HDD 4	HDD 6	HDD 8
Lower	HDD 1	HDD 3	HDD 5	HDD 7	HDD 9

## ETegro Hyperion RS130 G3 Rear Views

The ETegro Hyperion RS130 G3 has two power supply configurations; a 500W single power supply and a 650W redundant power supply.

### Rear View: 500W Single Power Supply



**Figure 3 – ETegro Hyperion RS130 G3 Rear View 500W single power supply**

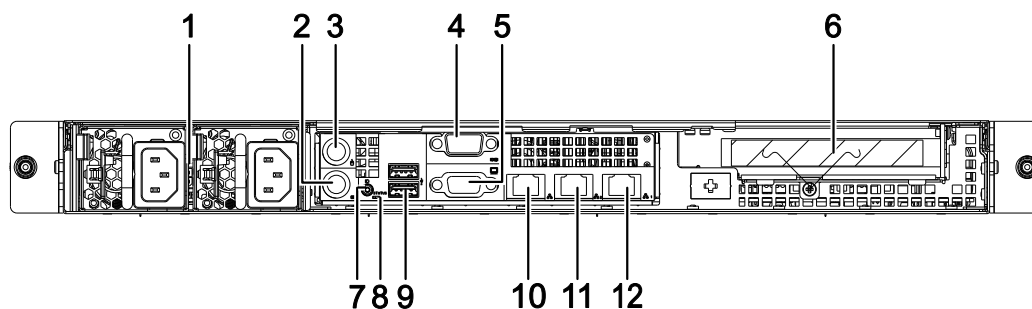
- |     |                        |  |
|-----|------------------------|--|
| 1.  | Power Module           | Connect the power cable to the socket. Note: this image shows a single power supply. Some server configurations are shipped with redundant power supplies. |
| 2.  | PS2 Keyboard Port      | Connect a PS2 keyboard to this port.   |
| 3.  | PS2 Mouse Port         | Connect a PS2 mouse to this port.  |
| 4.  | Serial Port            | Connect a serial device to this port.  |
| 5.  | VGA Port               | Connect an analog VGA cable to this port.  |
| 6.  | PCI Card Bay           | Remove this cover before installing any PCIE card.   |
| 7.  | ID Button/ Rear ID LED | Press to light front and rear ID LEDs (see System Controls and LEDs Description for behavior).   |
| 8.  | Status LED             | Behavior is controlled by BMC (see System Controls and LEDs Description for behavior).   |
| 9.  | USB Ports (2)          | Connect a USB device to either of these ports.   |
| 10. | IPMI NIC               | Connect a RJ-45 jack to this port to link to a BMC Ethernet LAN.   |
| 11. | NIC 2                  | Connect a RJ-45 jack to this port to link to a 10/100/1000 Megabit Ethernet LAN.   |
| 12. | NIC 1                  | Connect a RJ-45 jack to this port to link to a 10/100/1000 Megabit Ethernet LAN.   |

### Rear View: 650W Redundant Power Supply



**Note:**

Only a single PSU is shipped with a redundant power SKU system.



**Figure 4 – ETEgro Hyperion RS130 G3 Rear View 650W SKU with redundant power supply modules**

- |     |                        |  |
|-----|------------------------|--|
| 1.  | Power Module           | Connect the power cable to the socket.<br><b>Note:</b> Only a single PSU is shipped with a redundant power SKU system. |
| 2.  | PS2 Keyboard Port      | Connect a PS2 keyboard to this port.   |
| 3.  | PS2 Mouse Port         | Connect a PS2 mouse to this port.  |
| 4.  | Serial Port            | Connect a serial device to this port.  |
| 5.  | VGA Port               | Connect an analog VGA cable to this port.  |
| 6.  | PCI Card Bay           | Remove this cover before installing any PCIE card.   |
| 7.  | ID Button/ Rear ID LED | Press to light front and rear ID LEDs (see System Controls and LEDs Description for behavior).                         |
| 8.  | Status LED             | Behavior is controlled by BMC (see System Controls and LEDs Description for behavior).                                 |
| 9.  | USB Ports (2)          | Connect a USB device to either of these ports.   |
| 10. | IPMI NIC               | Connect a RJ-45 jack to this port to link to a BMC Ethernet LAN.   |
| 11. | NIC 2                  | Connect a RJ-45 jack to this port to link to a 10/100/1000 Megabit Ethernet LAN.                                       |
| 12. | NIC 1                  | Connect a RJ-45 jack to this port to link to a 10/100/1000 Megabit Ethernet LAN.                                       |










## System Controls and LEDs Description


### Front System Controls and LEDs

The following information describes the front system Controls and LED functions for the ETegro Hyperion RS130 G3 system. See the correct HDD SKU below for appropriate LED function description.


#### Front System: 4 x 3.5" HDDs

Location	NO.	Name	Icon	Color	Display Status	Description
Front	1	Power/Sleep Button/LED		Green	ON	System Main Power On
				Green	BLINK	Sleep
					OFF	System Main Power Off
	2	System ID Button/LED		Blue	BLINK	Indicate
					OFF	No Identification
	3	Status		Amber	ON	Critical failure such as critical fan, voltage, or temperature state
				Amber	BLINK	Non-critical failure such as non-critical fan, voltage, temperature state, or CPU thermal trip
					OFF	No System Failure Occurs.
	4	HDD		Green	OFF	No Access
				Green	BLINK	Hard Disk Drive Access
	5	LAN 1 & 2		Green	ON	LAN Link
				Green	BLINK	LAN Access
					OFF	Idle
	6	BMC LAN		Green	BLINK	LAN Access
					OFF	Idle
	7	HDD Tray		Dual HDD LED port		
				On board SATA (Single Color only, No HDD Fault/Rebuild)		
				Red (Top)/Amber (Bottom)	OFF	No HDD
				Green (Bottom)	OFF	
				Red (Top)/Amber (Bottom)	Amber ON	No Access (Present)
				Green (Bottom)	OFF	
				Red (Top)/Amber (Bottom)	Amber ON	HDD Access
				Green (Bottom)	BLINK	
				Add-on Card SAS/SATA Dual Color (Mezzanine Card or HBA)		
				Red(Top)/Amber (Bottom)	OFF	No HDD
				Green (Bottom)	OFF	
				Red(Top)/Amber (Bottom)	Amber ON	No Access (Present)
				Green (Bottom)	OFF	
				Red(Top)/Amber (Bottom)	Amber ON	HDD Access
				Green (Bottom)	BLINK	
				Red(Top)/Amber (Bottom)	Red ON	HDD Fault
				Green (Bottom)	OFF	
				Red(Top)/Amber (Bottom)	Red ON	HDD Rebuild
				Green (Bottom)	BLINK	
	8	Reset		Push to restart the system when the system is powered on.		

**Front System: 10 x 2.5" HDDs**

Location	NO.	Name	Icon	Color	Display Status	Description
Front	1	Power/Sleep Button/LED	Green Button	Green	ON	System Main Power On
				Green	BLINK	Sleep
					OFF	System Main Power Off
	2	System ID Button/LED	Blue Button	Blue	Blink	Indicate
					OFF	No Identification
	3	HDD	NO	Green	OFF	No Access
				Green	BLINK	Hard Disk Drive Access
	4	LAN 1 & 2	NO	Green	Blink	LAN Access
					OFF	Idle
	5	Status	NO	Amber	ON	Critical failure such as critical fan, voltage, or temperature state
				Amber	BLINK	Non-critical failure such as non-critical fan, voltage, temperature state, or CPU thermal trip
					OFF	No System Failure Occurs.
	6	HDD Tray		Dual HDD LED port		
				On board SATA (Single Color only, No HDD Fault/Rebuild)		
				Red (Top)/ Amber (Bottom)	OFF	No HDD
				Green (Bottom)	OFF	
				Red (Top)/ Amber (Bottom)	Amber ON	No Access (Present)
				Green (Bottom)	OFF	
				Red(Top)/ Amber (Bottom)	Amber ON	HDD Access
				Green (Bottom)	BLINK	
				Add-on Card SAS/SATA Dual Color (Mezzanine Card or HBA)		
				Red (Top)/ Amber (Bottom)	OFF	No HDD
				Green (Bottom)	OFF	
				Red (Top)/ Amber (Bottom)	Amber ON	No Access (Present)
				Green (Bottom)	OFF	
				Red (Top)/ Amber (Bottom)	Amber ON	HDD Access
				Green (Bottom)	BLINK	
				Red(Top)/ Amber (Bottom)	Red ON	HDD Fault
				Green (Bottom)	OFF	
				Red (Top)/ Amber (Bottom)	Red ON	HDD Rebuild
				Green (Bottom)	BLINK	

## Rear System LEDs

Location	NO.	Name	Icon	Color	Display Status	Description
Rear	1	LAN 1 & 2 BMC LAN	 RJ-45 LAN	Green (Right)	OFF	No Link, No Access
				Green/Amber (Left)	OFF	
				Green (Right)	ON	Link, No Access
				Green/Amber (Left)	NO	
				Green (Right)	BLINK	Link, Access
				Green/Amber (Left)	NO (10)	Speed 10
				Green (Right)	BLINK	Link, Access
				Green/Amber (Left)	Green On (100)	Speed 100
				Green (Right)	BLINK	Link, Access
				Green/Amber (Left)	Amber On (1Gb)	Speed 1G
	2	Status	Status	Amber	ON	Critical failure such as critical fan, voltage, or temperature state
				Amber	BLINK	Non-critical failure such as non-critical fan, voltage, temperature state, or CPU thermal trip
					OFF	No System Failure Occurs
	3	System ID Button/LED	ID	Blue	ON	Indicate
					OFF	No Identification

## SAS Mezzanine Option

The ETegro Hyperion RS130 G3 includes a proprietary x4 PCI-E interface on the serverboard to support SAS Mezzanine cards. The figures that follow illustrate the 1064E and 1068E SAS mezzanine card options supporting four and eight HDDs, respectively.

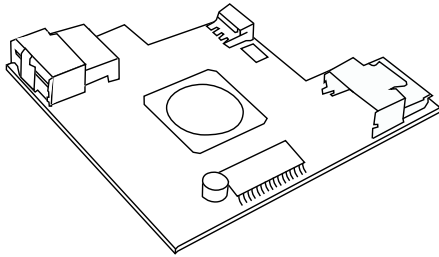


Figure 5 - 1068E SAS Mezzanine Option

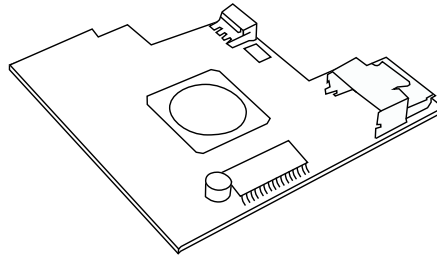


Figure 6 – 1064E SAS Mezzanine Option



**Note:**

The J2B1 slot (Slot\_2–PCIe X 4) is disabled when using the SAS mezzanine.

## SAS Mezzanine Features

### PCI Express

- Provides up to eight PCI-E PHYs
- Supports a single-PHY (1 lane) link transfer rate up to 2.5 Gbits/s in each direction
- Supports x8, x4, and x1 link widths
- Automatically downshifts to a x4 link width if plugged into a x4 connector or into a x8 connector that is wired as a x4 connector

### Integration

- Leverages proven Fusion-MPT technology
- PCI Express devices can use PCI-based device drivers, reducing integration challenges and risks
- Provides unequalled performance through the Fusion-MPT

### Architecture

- SAS interface: supports up to 8 SAS ports
- SW RAID support: supports software RAID 0, 1, 10, 5, 50 with RAID KEY enabled
- SGPIO/SES support: supports both SGPIO & SES for management
- SW RAID upgrade: ten and five with RAID Key enabled (via iButton)

## Safety Measures

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous. Follow the simple guidelines below to avoid damage to your computer or injury to yourself.

- Always disconnect the computer from the power outlet whenever you are working inside the computer case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the computer case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board.
- Leave all components inside the static-proof packaging until you are ready to use the component for the installation.



**Note:**

Where there are no differences between options, images show the 3.5" HDD server model with unless otherwise specified.

## ETegro Hyperion RS130 G3 Mainboard Components

The following illustration displays the most important ETegro Hyperion RS130 G3 mainboard components.

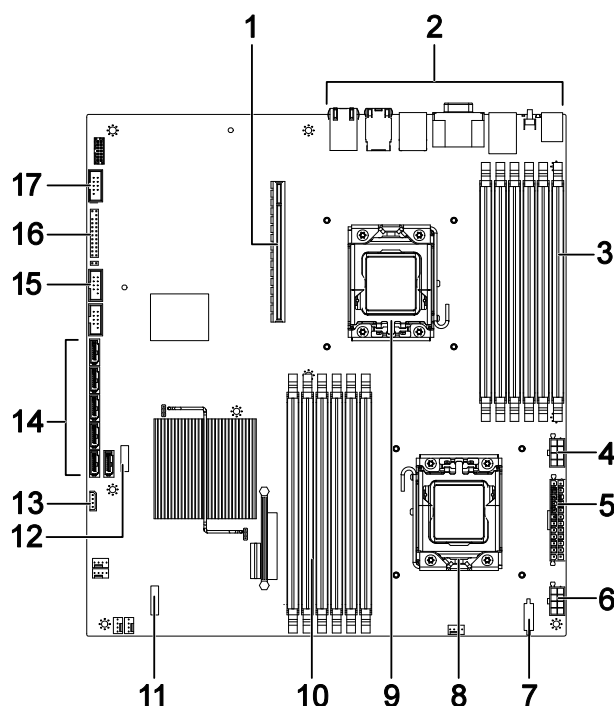


Figure 6 – Mainboard diagram

Item	Label	Component
1.	PCI slot	PCI slot supporting PCI-E
2.	I/O ports	See ETegro Hyperion RS130 G3 Rear View on page 5.
3.	DDR3 DIMM array (CPU 1)	6 x DDR3 DIMM slots – channels 1, 2, and 3.
4.	CPU_PWR1	CPU1 power connector
5.	MAIN_PWR	Serverboard main power connector
6.	CPU_PWR2 (CPU2)	CPU2 power connector
7.	PSMI	Management interface
8.	CPU_2 socket	1366-pin (Socket B) CPU_2 socket for processor
9.	CPU_1 socket	1366-pin (Socket B) CPU_1 socket for processor
10.	DDR3 DIMM array (CPU 2)	6 x DDR3 DIMM slots – channels 4, 5, and 6.
11.	Slot for SAS mezzanine card (optional)	
12.	IPMI connector	Baseboard management controller
13.	USB port	Internal USB port
14.	SATA connectors	6 x SATA II connectors
15.	USB connector	Front USB 2.0 connector
16.	Front panel	Front panel connector
17.	COM port	Front USB 2.0 connector

## Installing an HDD

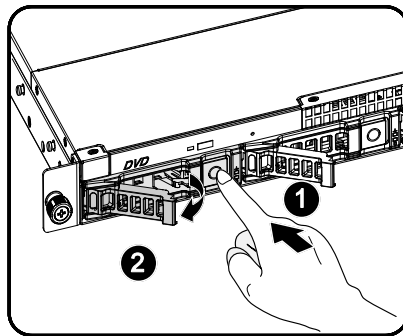
The ETegro Hyperion RS130 G3 server system can accommodate the following HDD options:

- 3.5" HDD in a 3.5" tray
- 2.5" HDD in a 3.5" tray
- 2.5" HDD in a 2.5" tray

Follow the instructions as outlined to install a 2.5" or a 3.5" HDD.

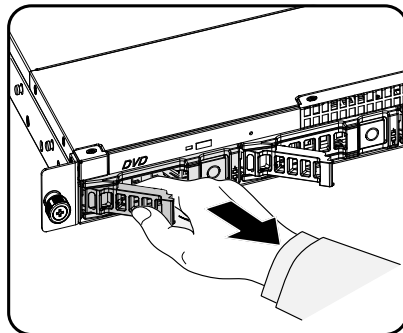
## Removing a 3.5" HDD

1. Push the locking latch in the direction of the arrow ❶.



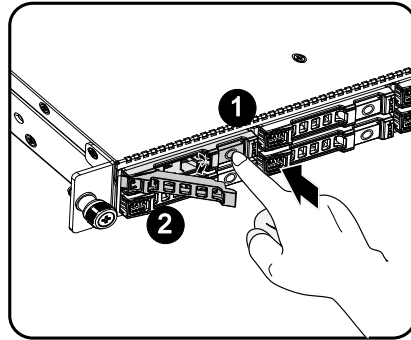
The HDD tray-locking lever springs open ❷.

2. Pull the locking lever to remove the HDD tray.



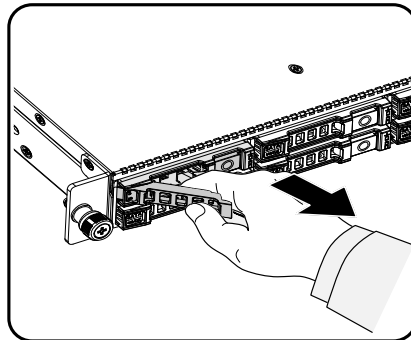
## Removing a 2.5" HDD

1. Push the locking latch in the direction of the arrow ❶.



The HDD tray-locking lever springs open ❷.

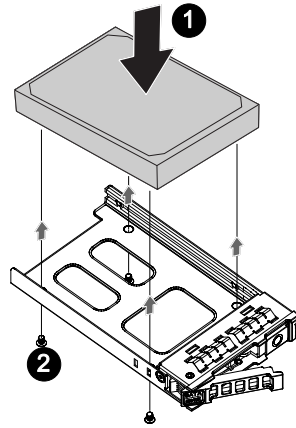
2. Pull the locking lever to remove the HDD tray.





## Securing a 2.5" Hard Drive in a 2.5" Tray

Secure the 2.5" hard drive to the tray with the four (4) screws as shown. Do not over tighten the screws.



## Securing a 3.5" and 2.5" Hard Drive in a 3.5" Tray

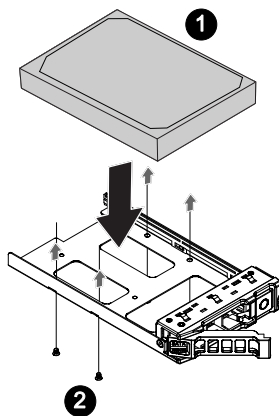
The 3.5" HDD tray can accommodate either a 3.5" HDD or a 2.5" HDD drive. Both options are depicted in the following guide.

Secure the 3.5" hard drive to the tray with four (4) screws as shown. Do not over tighten the screws.

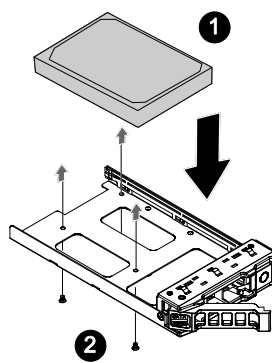
OR

Secure the 2.5" hard drive to the tray with three (3) screws as shown. Do not over tighten the screws.

The following images depict a 3.5" and 2.5" HDD in a 3.5" tray.



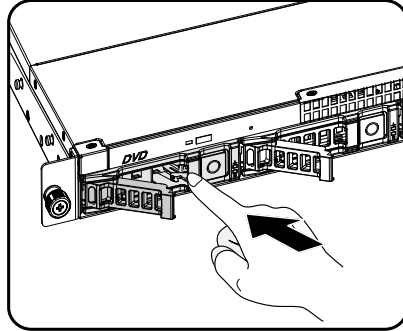
3.5" HDD in a 3.5" tray



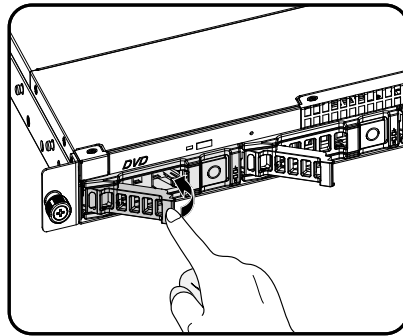
2.5" HDD in a 3.5" tray

## Replacing a 3.5" HDD

1. Replace the HDD tray and push the assembly in the direction of the arrow to connect the hard drive with the port.

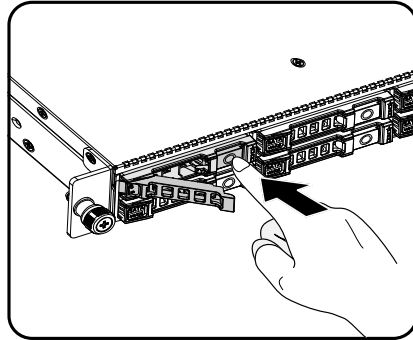


2. Close the locking lever and ensure that the locking latch is secure.

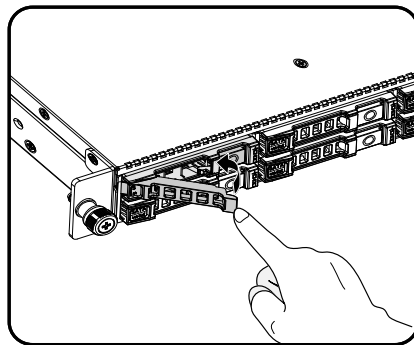


## Replacing a 2.5" HDD

1. Replace the HDD tray and push the assembly in the direction of the arrow to connect the hard drive with the port.



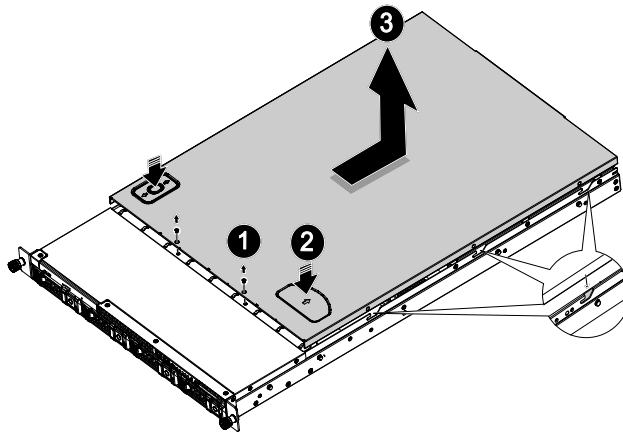
2. Close the locking lever and ensure that the locking latch is secure.



## Removing the Chassis Cover

Refer to the following illustrations for instructions on removing the chassis cover:

1. Loosen and remove the two securing screws **1** on the top of the server. Press down the locking button **2** as shown and slide the cover in the direction of the arrow using the traction pad.



2. Slide the cover in the direction of the arrow using the traction pad **3**.

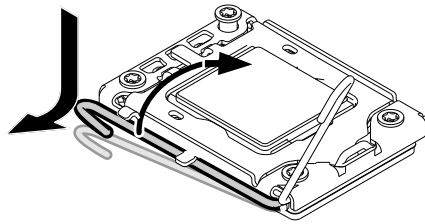
## Installing the CPU

### Important!

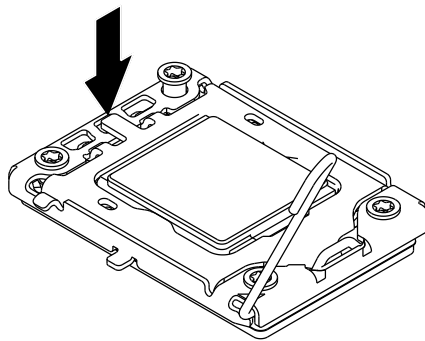
When installing only one CPU, the CPU must be installed in the CPU0 socket (see *ETegro Hyperion RS130 G3 Mainboard Components* on page 12 for location).

Follow these instructions to install the CPU:

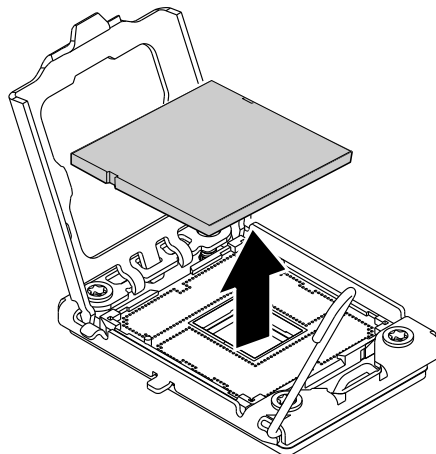
1. Pull the locking lever of the CPU socket out and up as shown.



2. Push down as demonstrated to lift the CPU bracket.



3. Remove the CPU dust cover by lifting the tab marked **Remove**.



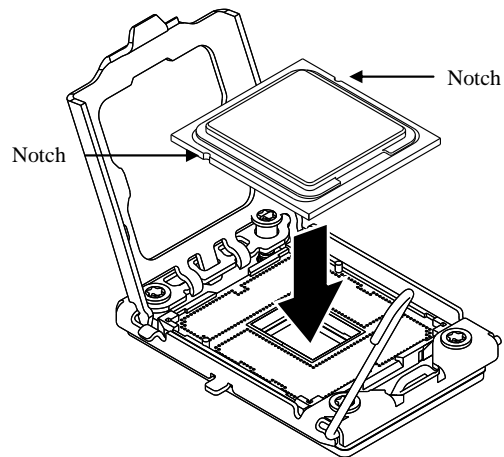
## —Installing Hardware

4. Locate the pin-1 corner of the CPU (marked by a small triangle) and the pin-1 corner of the socket; note that the CPU has notches that fit into the socket.

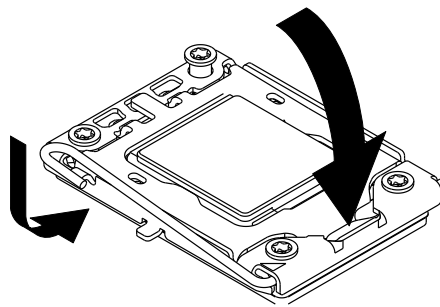
### **Important!**

The ETegro Hyperion RS130 G3 uses an LGA 1366 socket, which is designed for trouble free insertion of the CPU. After placing the CPU into the socket, press the lever down and lock in place. If you notice any resistance when inserting the CPU, ensure that it is aligned correctly.

5. Align the pin-1 corner (▼) and the notches and drop the processor into the socket.



6. Replace the CPU bracket and locking lever to lock the processor in place.

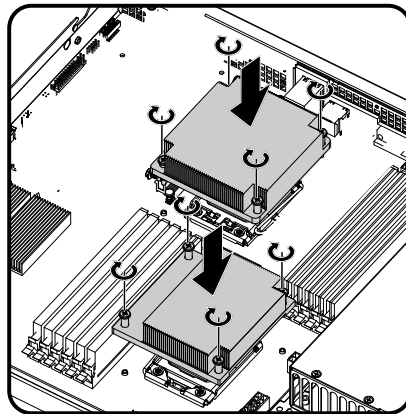


## Installing a Heat Sink

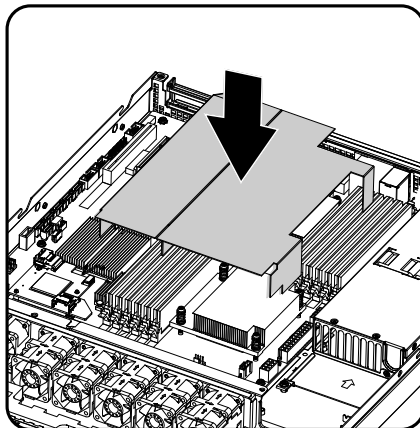
(See ETegro Hyperion RS130 G3 *Mainboard Components* on page 12 for location).

Follow these instructions to install the heat sink:

1. Apply thermal compound evenly on the top of the CPU.
2. Remove the protective cover from the underside of the heat sink.
3. Place the heat sink(s) on top of the CPU and tighten the eight captive screws.



4. Insert the air duct around the sides of the heat sink and along the memory slots as shown.



## Installing a PCI Card



### WARNING!

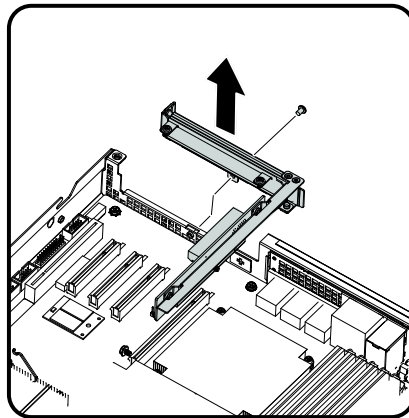
Voltages can be present within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position. Ensure that the system is powered-down and all power sources have been disconnected from the server prior to installing a PCI card.

Use only a ETegro Hyperion RS130 G3 specific PCI riser card when installing a PCI card.

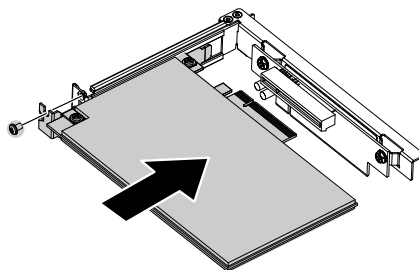
Failure to observe these warnings could result in personal injury or damage to equipment.

Refer to the following illustrations for instructions on installing a PCI card:

1. Remove chassis cover. See *Removing the Chassis Cover* on page 17.
2. Remove the securing screw (1).
3. Remove the PCI riser assembly clear of the chassis in the direction shown.



4. Orient the PCI card with the riser guide slot and push in the direction of the arrow until the PCI card sits in the PCI card connector. Secure the PCI card with the screw as shown.



5. Replace the riser assembly in the chassis.
6. Secure the riser in place with the single securing screw.

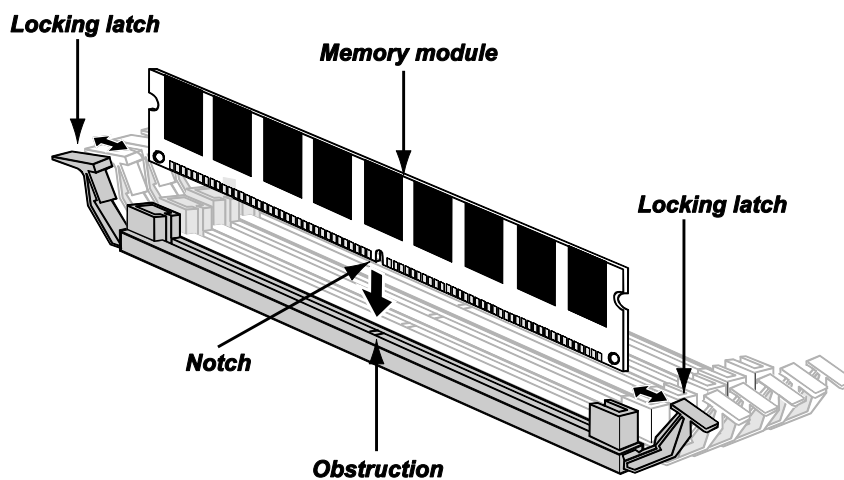


## Installing Memory

The motherboard has eighteen DDR3-DIMM slots for the installation of up to twelve un-buffered DIMMs @ DDR3 800/1066/1333 MHz or eighteen registered DIMM memory sockets with ECC. See *ETegro Hyperion RS130 G3 Mainboard Components* on page 12 for the location of the memory modules.

Follow these instructions to install memory modules:

1. Pull the locking latches of the DIMM slot outwards.
2. Align the memory module correctly. Note the notch and obstruction in the following illustration.



3. Press the edge connector of the memory module into the slot. Press down firmly so that the locking latches of the DIMM slot are levered upwards to secure the memory module in place.

## Supported DIMM Configuration

The following DIMM configurations are supported by the ETegro Hyperion RS130 G3 server. DIMM slots are numbered 0 to 1 and designated by 3 channels. Populate DIMM slots starting with slot 0: channel 0. See the following for possible memory configurations.

### DIMM Population Rule

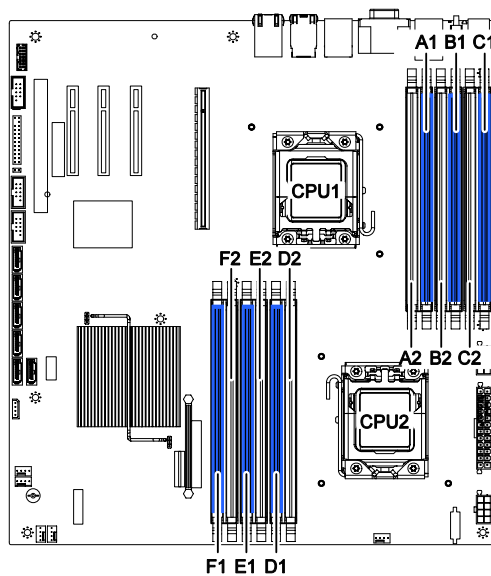


Figure 7 – DIMM population rule

### Single Processor Population

For single processor population, the following guidelines apply:

- DIMM 1: Single channel.
- DIMM 3: Three channels, populate Single DIMM per channel.
- DIMM 6: Three channels, populate Two DIMMs per channel.

The DIMM population rules are shown below. Populated DIMM slots are denoted with an “O”.

Table 1. Unbuffered DIMM Installation Option for 1P Configuration

Unbuffered DIMM Installation Option for 1P Configuration									
DIMM	Processor	DIMM	DIMM	DIMM	DIMM	DIMM	DIMM	Max Speed	
		A2	A1	B2	B1	C2	C1	Single & Dual Rank	Quad Rank
1	Processor 1	-	O	-	-	-	-	1333	1066
3	Processor 1	-	O	-	O	-	O	1333	1066
6	Processor 1	O	O	O	O	O	O	1066	800

**Table 2. Registered DIMM Installation Option for 1P Configuration**

Registered DIMM Installation Option for 1P Configuration									
DIMM	Processor	DIMM	DIMM	DIMM	DIMM	DIMM	DIMM	Max Speed	
		A2	A1	B2	B1	C2	C1	Single & Dual Rank	Quad Rank
1	Processor 1	-	O	-	-	-	-	1333	1066
3	Processor 1	-	O	-	O	-	O	1333	1066
6	Processor 1	O	O	O	O	O	O	1066	800

### **Dual Processor Population**

For dual processor population, the following guidelines apply:

DIMM 2: Single channel per CPU.

DIMM 4: Three channels, populate Single DIMM per channel per CPU.

DIMM 6: Three channels, populate Two DIMMs per channel per CPU.

The DIMM population rules are shown below. Populated DIMM slots are denoted with an “O”.

**Table 3. Unbuffered DIMM Installation Option for 2P Configuration**

Unbuffered DIMM Installation Option for 2P Configuration									
DIMM	Processor	DIMM	DIMM	DIMM	DIMM	DIMM	DIMM	Max Speed	
		A2	A1	B2	B1	C2	C1	Single & Dual Rank	Quad Rank
2	Processor 1	-	O	-	-	-	-	1333	1066
	Processor 2	-	O	-	-	-	-	1333	1066
6	Processor 1	-	O	-	O	-	O	1333	1066
	Processor 2	-	O	-	O	-	O	1333	1066
12	Processor 1	O	O	O	O	O	O	1066	800
	Processor 2	O	O	O	O	O	O	1066	800

**Table 4. Registered DIMM Installation Option for 1P Configuration**

Registered DIMM Installation Option for 2P Configuration									
DIMM	Processor	DIMM	DIMM	DIMM	DIMM	DIMM	DIMM	Max Speed	
		A2	A1	B2	B1	C2	C1	Single & Dual Rank	Quad Rank
2	Processor 1	-	O	-	-	-	-	1333	1066
	Processor 2	-	O	-	-	-	-	1333	1066
6	Processor 1	-	O	-	O	-	O	1333	1066
	Processor 2	-	O	-	O	-	O	1333	1066
12	Processor 1	O	O	O	O	O	O	1066	800
	Processor 2	O	O	O	O	O	O	1066	800



**Note:**  
Max speed is dependent on selected CPU.

### **CPU Memory to Speed Configuration**

The following table provides corresponding information for CPU type to memory speed. CPUs with 6.4 GT/s support memory up to 1333 MHz, while 5.86 GT/s support up to 1066 MHz and 4.8 GHz only support 800 MHz. Memory speed is automatically downgraded to match the supported CPU value. As an example, 1333 MHz memory with an E5530 CPU, rated at 5.86 GT/s, is detected at a speed of 1066 MHz because of the CPU rating. See the following table for further information.

CPU Number	Clock Speed	QPI Speed	Max Memory Speed
X5570	2.93 GHz	6.4 GT/s	1333/1066/800 MHz
X5560	2.80 GHz		
X5550	2.66 GHz		
E5540	2.53 GHz	5.86 GT/s	1066 MHz
E5530	2.40 GHz		
E5520/L5520	2.26 GHz		
E5506/L5506	2.13 GHz	4.86 GHz	800 MHz
E5504	2.00 GHz		
E5502	1.86 GHz		

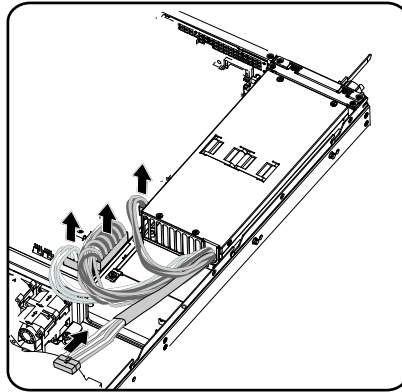
## Replacing the Single Power Supply Unit

In case of a power supply failure, you can quickly replace the power supply unit (PSU). This section describes installation procedures for both the 500W non-redundant power supply and the 650W non-redundant power supply.

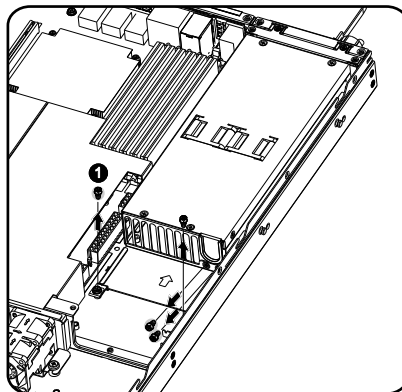
### Replacing a 500W non-redundant power supply unit

Follow these instructions to replace a 500W PSU:

1. Remove the chassis cover. See *Removing the Chassis Cover* on page 17.
2. Disconnect the four (4) power cables from the chassis as shown in the following image.

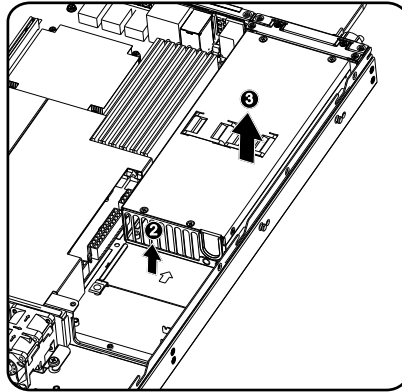


3. Remove the four (4) screws securing the power supply to the chassis ❶.

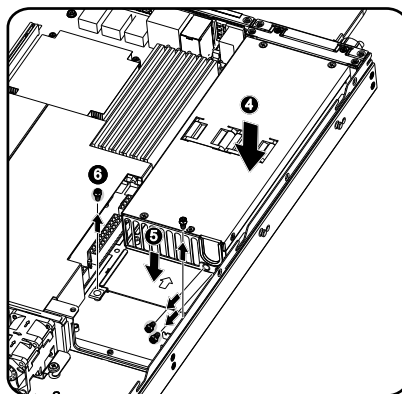


— *Installing Hardware*

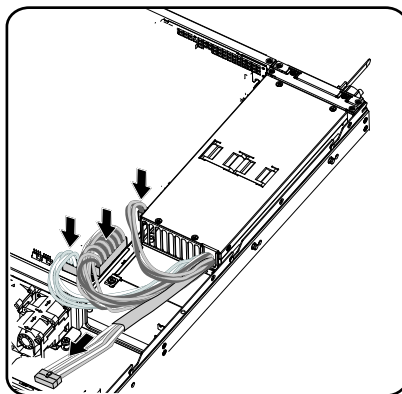
4. Lift the bracket **2** and power supply **3** out of the chassis as shown in the following image.



5. Insert the replacement power supply **4** and the securing bracket **5**.
6. Replace the bracket securing screws (x4) **6**.



7. Connect the four (4) power cables to the chassis as shown. Ensure that all the cables are flush with the chassis and do not cause an obstruction.

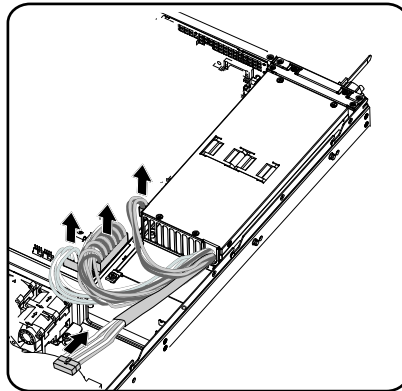


8. Insert the power supply cord.
9. Replace the chassis cover (see *Replacing the Chassis Cover* on page 47).

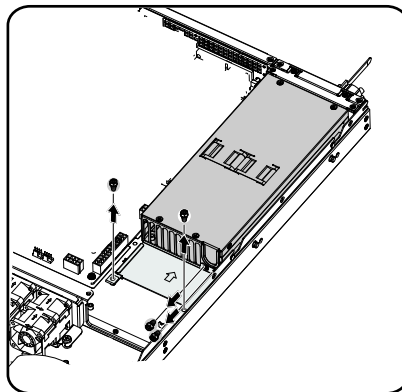
## Replacing a 650W non-redundant power supply unit

Follow these instructions to replace a 650W PSU:

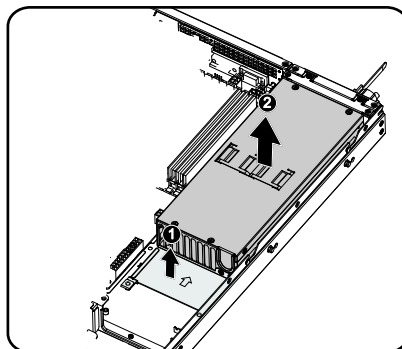
1. Remove the chassis cover. See *Removing the Chassis Cover* on page 17.
2. Disconnect the four (4) power cables from the chassis as shown in the following image.



3. Remove the two (2) screws securing the power supply to the chassis ②.



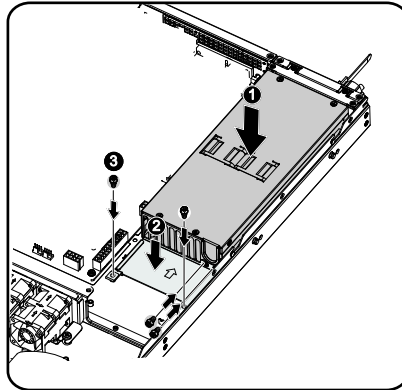
4. Lift the bracket ① and power supply ② out of the chassis as shown in the following image.



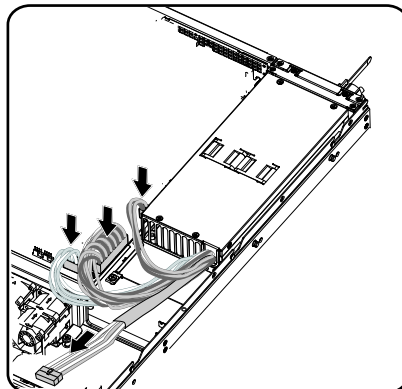
5. Insert the replacement power supply ① and the securing bracket ②.

— *Installing Hardware*

6. Replace the bracket securing screws (x4) ③.



7. Connect the four (4) power cables to the chassis as shown. Ensure that all the cables are flush with the chassis and do not cause an obstruction.



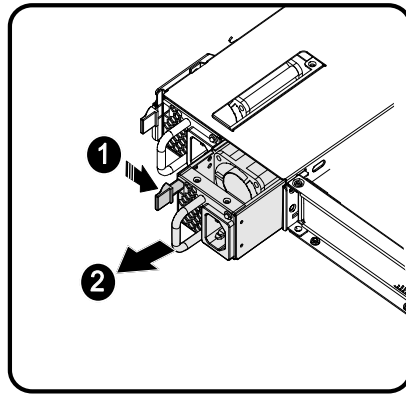
8. Insert the power supply cord.
9. Replace the chassis cover (see *Replacing the Chassis Cover* on page 47).



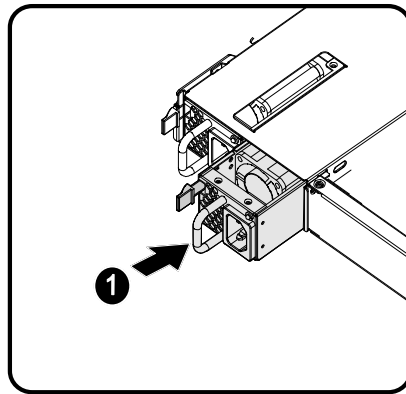
## Replacing the Redundant Power Supply Unit

Follow these instructions to install the redundant power supply:

1. Press the release lever **❶** and pull the power unit out as shown **❷** in the following image.



2. Insert the replacement redundant power supply as shown **❶**.



3. Insert the power supply cord.

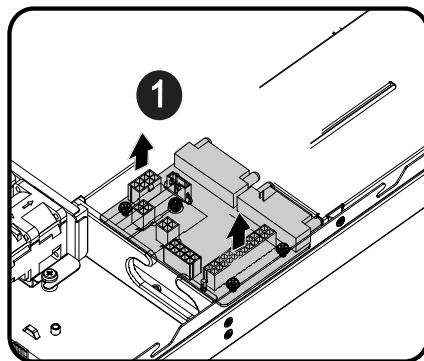
## Replacing a PDB Board

The PDB board is only available in the Redundant PSU SKU. Follow the guidelines as outline

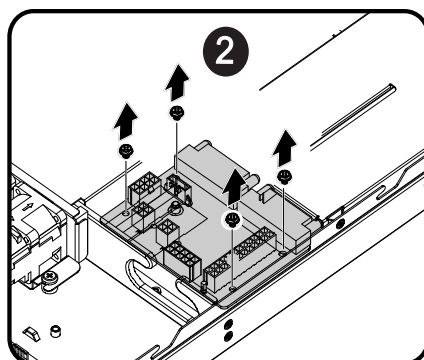


**Note:**  
PDB board is only available in the Redundant PSU SKU.

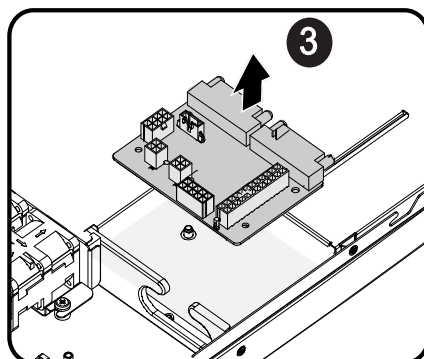
1. Remove chassis cover, see *Removing the Chassis Cover* on page 17.
2. Disconnect the 4-pin power and 24-pin power cables from the PDB board ❶.



3. Remove the four (4) securing screws from the PDB board ❷.



4. Lift the PDB board to remove from the chassis ❸.



5. Locate the new PDB board on the chassis and reverse steps three to one to secure in place.

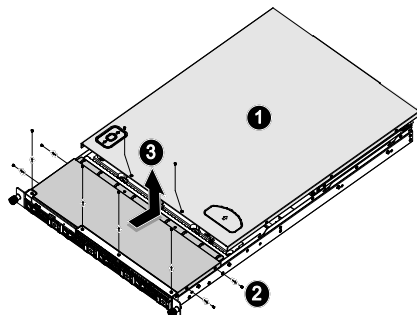
## Replacing the DVD-ROM

Refer to the following illustrations for instructions on replacing the DVD-ROM unit:

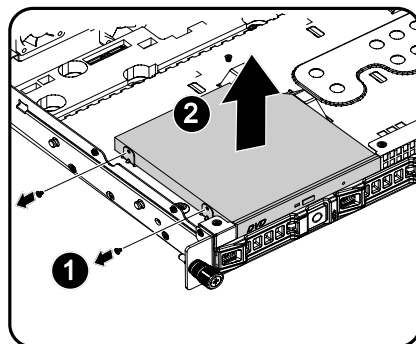


**Note:**  
Only the 3.5" HDD option is supplied with a DVD-ROM.

1. Remove the chassis cover **1**. See *Removing the Chassis Cover* on page 17.
2. Remove the eight (8) securing screws on the front and sides of the chassis cover **2** and slide the cover in the direction of the arrow to remove **3**.



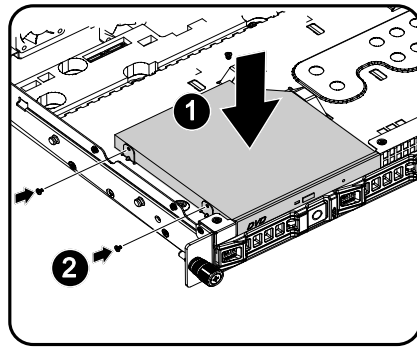
3. Remove the two securing screws **1** and lift the DVD-ROM out of the chassis **2**.



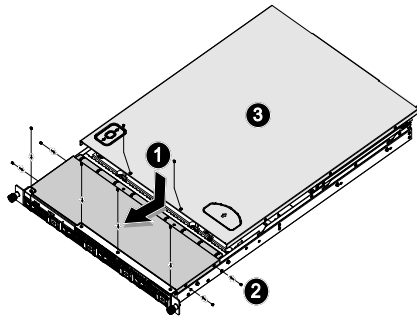
4. Disconnect the signal and power cables from the back of the DVD-ROM and remove the unit.
5. Replace with a new unit and connect the signal and power cables..

3-6. Place the DVD-ROM assembly to the chassis **1** and secure the unit using the two supplied screws **2**.

Формат: Список



7. Replace the front chassis cover **1** and secure it in place with the eight supplied screws **2**.
8. Replace the chassis cover **3**. See *Replacing the Chassis Cover* on page 47.



## Replacing the Fan Modules

In case of fan failure, you can quickly replace the fan modules.



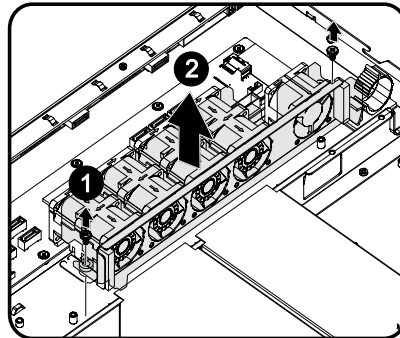
**Note:**

The *ETegro Hyperion RS130 G3* ships with two different cooling fan configurations depending on the size of the power supply. 650W (redundant and fixed) PSUs are supplied with six fans. Units with 500W PSUs are shipped with five fans.

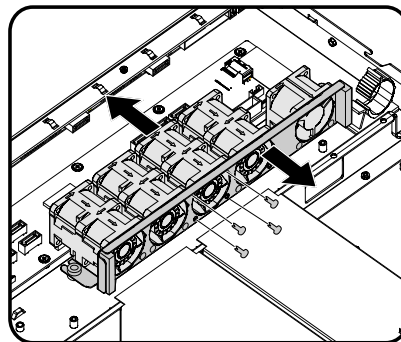
### Replacing a Fan Module in a 500W Unit

Follow these instructions to individually replace each fan module:

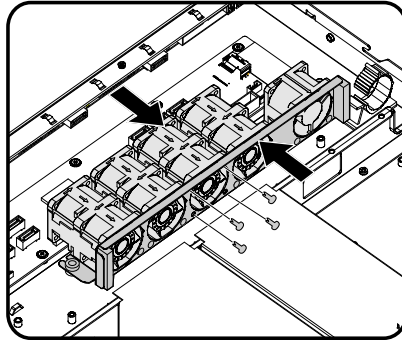
1. Remove the chassis cover. See *Removing the Chassis Cover* on page 17.
2. Disconnect the fan power cables.
3. Remove the two (2) screws holding the fan assembly in place ❶ and remove the assembly as shown ❷.



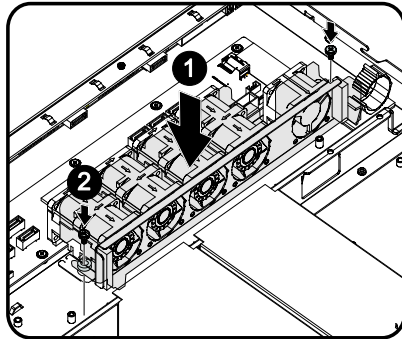
4. Remove the push pins (x4 per fan) to separate the fan module from the fan bracket.



5. Remove fan module from the bracket.
6. Replace the fan module into the assembly.



7. Replace the fan assembly into the chassis and insert the two screws to secure it in place.

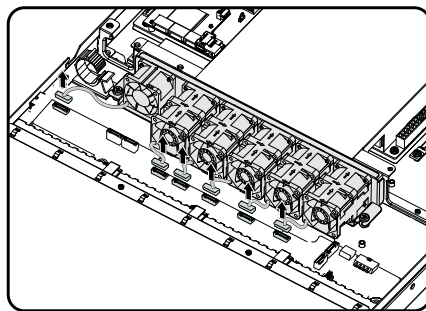


8. Replace the chassis cover. See *Replacing the Chassis Cover* on page 47.

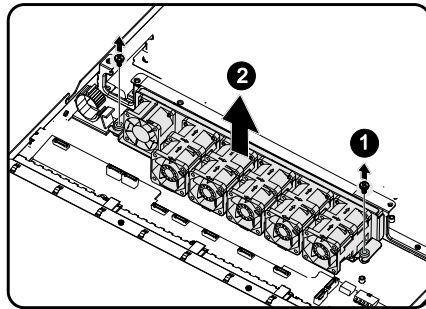
## Replacing a Fan Module in a 650W Unit

Follow these instructions to individually replace each fan module:

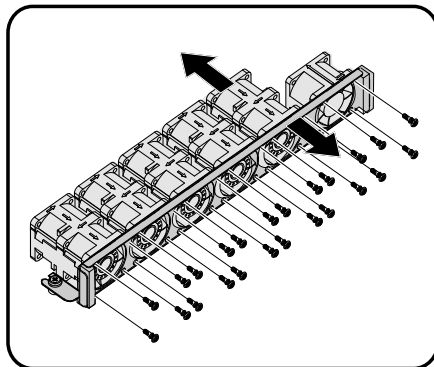
1. Remove the chassis cover. See *Removing the Chassis Cover* on page 17.
2. Disconnect the fan power cables.



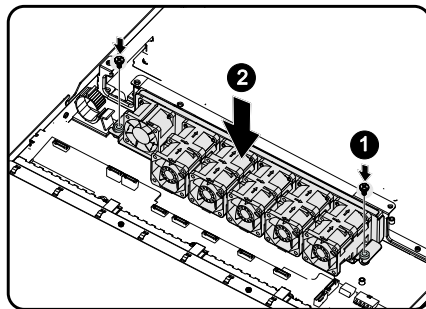
3. Remove the screws (2) holding the fan assembly in place ① and remove the assembly as shown ②.



4. Remove the push pins (x4 per fan) to separate the fan module from the fan bracket.



5. Remove fan module from the bracket.
6. Replace the fan module.



7. Reverse the steps to install the replacement fan assembly.
8. Replace the chassis cover. See *Replacing the Chassis Cover* on page 47.

## Replacing the Backplane: 3.5" Chassis

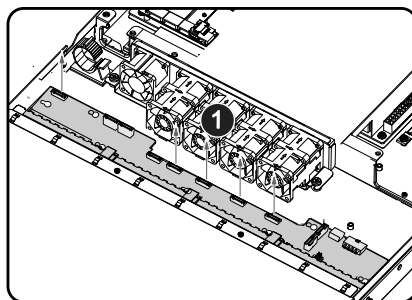


**Note:**

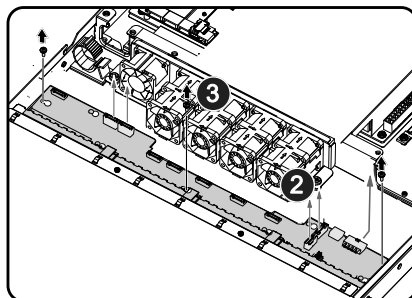
The ETegro Hyperion RS130 G3 ships with two different cooling fan configurations depending on the size of the power supply. 650W (redundant and fixed) PSUs are supplied with six fans. Units with 500W PSUs are shipped with five fans.

Follow these instructions to replace the fan assembly:

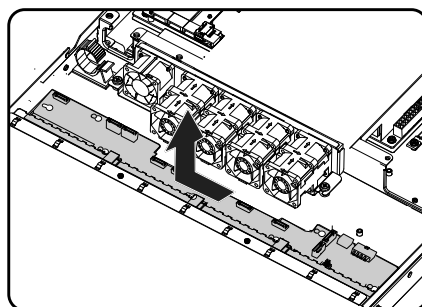
1. Remove the chassis cover. See *Removing the Chassis Cover* on page 17.
2. Disconnect the five (5) fan cable connectors **1**.



3. Disconnect the four (4) SATA cables and a single power cable **2**.
4. Remove the three (3) securing screws **3**.



5. Slide the board in the direction of the arrow and lift the Back Plane clear of the server chassis.



6. Insert the replacement Back Plane as and reverse steps four to 1 to secure in place.
7. Replace the chassis cover. See *Replacing the Chassis Cover* on page 47.



## Replacing the Expander Board: 2.5" Chassis



**Note:**

The ETegro Hyperion RS130 G3 ships with two different cooling fan configurations depending on the size of the power supply. 650W (redundant and fixed) PSUs are supplied with six fans. Units with 500W PSUs are shipped with four fans. The following procedure shows the 650W configuration.

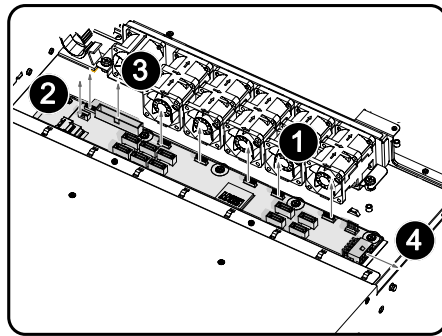
Follow these instructions to replace the expander board:

1. Remove the chassis cover. See *Removing the Chassis Cover* on page 17.
2. Disconnect the fan (x6) ❶, IPBM ❷, IDE ❸, and power cables ❹.

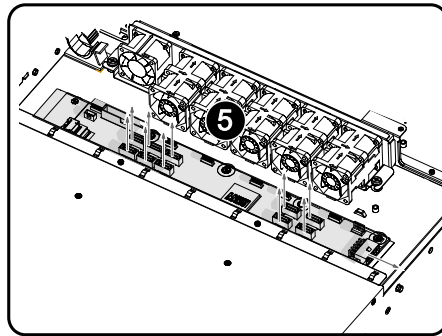


**Note:**

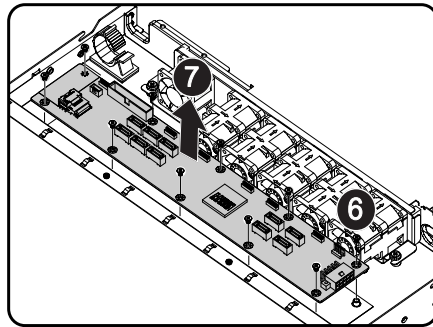
Only four fan connectors are present with the 500W PSU option..



3. Disconnect the SATA connectors from the expander board ❺.



4. Remove the ten (10) securing screws ❻ and lift the expander board out of the chassis ❼.



5. Insert the replacement expander board and secure with the ten (10) screws.
6. Connect the cabling on the expander board to the connectors on the backplane, see following image.
7. Replace the chassis cover. See *Replacing the Chassis Cover* on page 47.



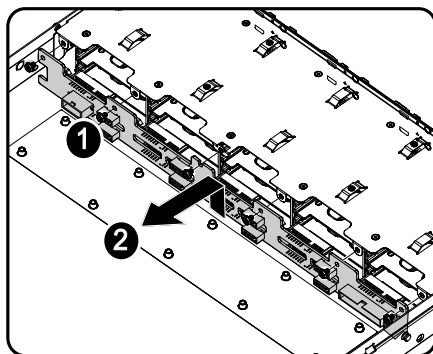
**Note:**

Connectors 9 and 10 are longer than all other SATA connectors.

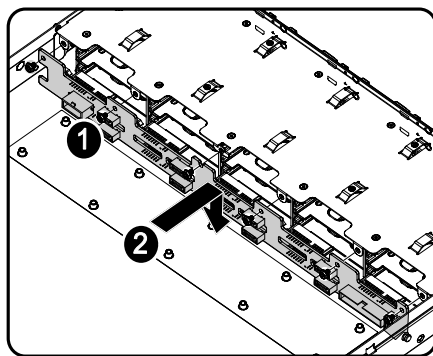
## Replacing the Backplane: 2.5" Chassis

Follow these instructions to replace the backplane assembly:

1. Remove the chassis cover. See *Removing the Chassis Cover* on page 17.
2. Disconnect the power connector.
3. Disconnect the SATA connectors from the expander board.
4. Remove the expander board, see *Replacing the Expander Board: 2.5" Chassis* on page 39.
5. Remove the six (6) securing screws ❶.
6. Remove the backplane as demonstrated in the following image ❷.

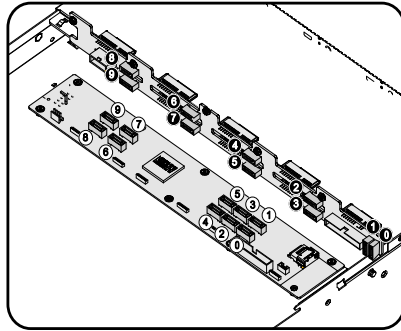


7. Replace the backplane as demonstrated ❶, and secure with the six (6) screws ❷.



8. Connect the ten SATA cables from the backplane to the expander board.

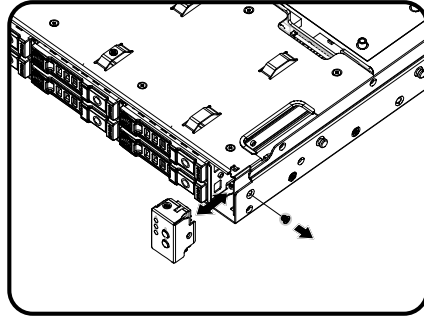
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9. Replace the expander board, see *Replacing the Expander Board: 2.5" Chassis* on page 39.
8. Replace the chassis cover. See *Replacing the Chassis Cover* on page 47.

## Replacing the Control Board: 2.5" Chassis

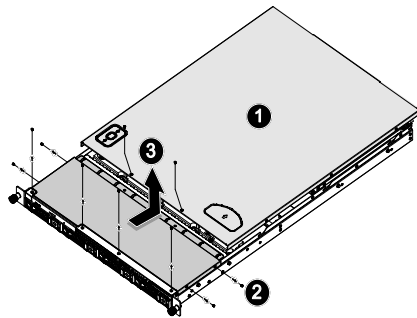
1. Remove the single securing screw from the side of the chassis.
2. Pull the Control Board out of the chassis as shown in the following image.



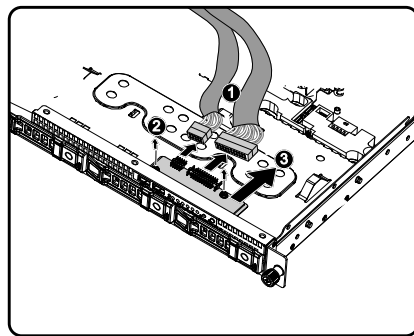
3. Replace the Control Board, ensuring that the Control Board is connected to the server.
4. Secure with the single screw.

## Replacing the Front LED Board: 3.5" Chassis

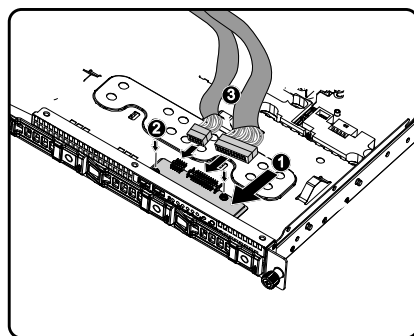
1. Remove the chassis cover **1**. See *Removing the Chassis Cover* on page 17.
2. Remove the eight (8) securing screws on the front and sides of the chassis cover **2** and slide the cover in the direction of the arrow to remove **3**.



3. Disconnect the power supply cables **1** and remove the two securing screws **2**.
4. Slide the Front LED Board in the direction of the arrow to remove it **3**.



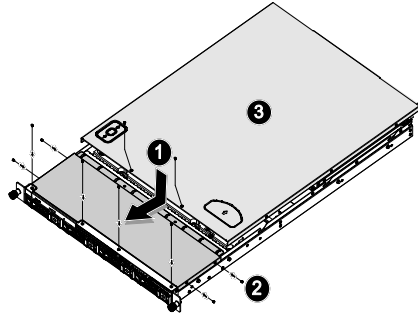
5. Install the replacement board as shown **1** and secure it in place with the two securing screws **2**.
6. Reconnect the power cables as shown **3**.



7. Replace the front chassis cover **1** and secure it in place with the eight supplied screws **2**.

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8. Replace the chassis cover ③. See *Replacing the Chassis Cover* on page 47.



## Replacing the Mainboard

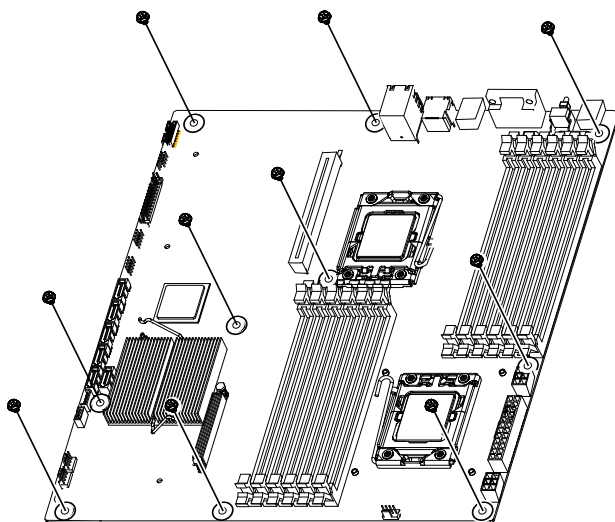
In order to remove the motherboard, you need to disconnect all connections between the mainboard and components in the case and any cables that are simply in the way.

### Important!

When removing any component, wear a properly grounded static strap to prevent static discharge.

Follow these instructions to replace the mainboard:

1. Unplug the power supply.
2. Remove the chassis cover. See *Removing the Chassis Cover* on page 17.
3. Remove the heatsinks from the chassis. See *Installing a Heat Sink* on page 21.
4. Remove the CPU(s) from the chassis. See *Installing the CPU* on page 19.
5. Remove the PCI riser card assembly. See *Installing a PCI Card* on page 22.
6. Disconnect the power, IPMB, SATA, front panel, and mainboard cable connectors from the mainboard. See *ETegro Hyperion RS130 G3 Mainboard Components* on page 12.
7. Remove the ten (10) screws securing the mainboard in place.



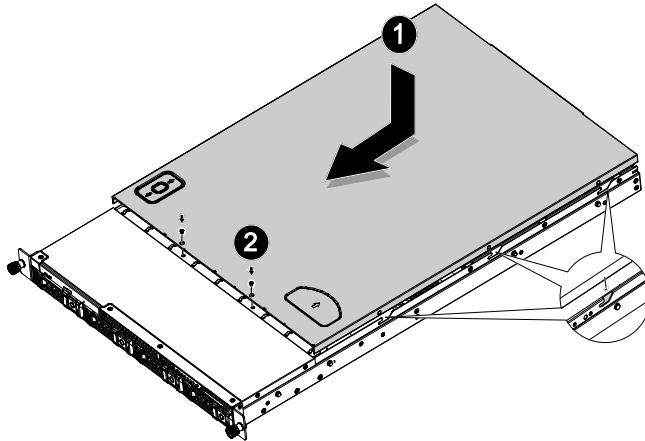
8. Lift the mainboard out of the chassis front edge first to clear the I/O ports.
9. When replacing the mainboard, align the holes to position the mainboard correctly in the chassis.
10. Replace the ten (10) screws to secure the mainboard in place.
11. Reconnect the power, IPMB, SATA, front panel, and mainboard connectors to the mainboard. See *ETegro Hyperion RS130 G3 Mainboard Components* on page 12.
12. Replace all removed components.
13. Replace the chassis cover. See *Replacing the Chassis Cover* on page 47.



## Replacing the Chassis Cover

Refer to the following illustrations for instructions on replacing the chassis cover:

1. Replace the cover, locating the six securing lugs in the slots on the chassis. Slide the chassis in the direction of the arrow ❶ until the locking button clicks into place.



2. Replace the two (2) securing screws ❷ on top of the server.

## Setup Menu

The computer employs the latest AMI Core BIOS, which is stored in Flash memory. The Flash memory supports the Plug and Play specification, and contains a BIOS Setup program, the Power On Self Test (POST) routine, and the PCI auto-configuration utility.

This motherboard supports system BIOS shadowing enabling the BIOS to execute from 64-bit onboard write-protected DRAM.

Configure such items as:

Hard drives, diskette drives, and peripherals

Password protection from unauthorized use

Power Management features

This Setup utility should be executed under the following conditions:

When changing the system configuration

When a configuration error is detected by the system and you are prompted to make changes to the Setup utility

When redefining the communication ports to prevent any conflicts

When changing the password or making other changes to the security setup



**Note:**

Only items in brackets [ ] can be modified. Items that are not in brackets are display only.

## BIOS Setup Options at Boot

The user will be able to initiate SETUP by pressing the respective keys during the POST:

**<F2> – Enter the BIOS Setup**

## Console Redirection

The console redirection allows a remote user to diagnose and fix problems on a server, which has not successfully booted the OS. The centerpiece of the console redirection is the BIOS Console. The BIOS Console is a Flash ROM-resident utility that redirects input and output over a serial or modem connection.

The BIOS supports console redirection to a serial port. If serial port based headless server support is provided by the system, the system must provide support for redirection of all BIOS driven console I/O to the serial port. The driver for the serial console must be capable of supporting the functionality documented in the ANSI Terminal Definition.

## Enable/Disable Console Redirection

The console redirection function can be enabled/disabled in the BIOS Setup menu.

COM1 for console redirection

COM2 for Serial over LAN

Value	Description
00H	Console Redirection function disable
01H	Console Redirection to COM1 (3F8H)

## Configuring Special Keys

Console redirection uses ANSI terminal emulation, which is limited to basic ASCII characters. There are no function keys, arrow keys, or control keys in this character set. However, the FS12-SC BIOS software requires the use of function keys and control keys for ordinary functions. You can emulate a function key or control key by using a special key sequence called an *escape sequence*, to represent a specific key.

For console redirection, an *escape sequence* starts with an *escape character*. This character can be entered in a variety of different ways depending on the requirements of your terminal emulation software. For example, 0x1b, ^[, and <Esc> refer to the same escape character.

The following table lists the *escape sequence* that must be sent to represent a special key or command.

Key	ANSI Escape Sequence	Windows Platform Design Note
F1	<ESC><Shift>op	<ESC>1
F2	<ESC><Shift>oq	<ESC>2
F3	<ESC><Shift>or	<ESC>3
F4	<ESC><Shift>os	<ESC>4
F5	<ESC><Shift>ot	<ESC>5
F6	<ESC><Shift>ou	<ESC>6
F7	<ESC><Shift>ov	<ESC>7
F8	<ESC><Shift>ow	<ESC>8
F9	<ESC><Shift>ox	<ESC>9
F10	<ESC><Shift>oy	<ESC>0
F11	<ESC><Shift>oz	<ESC>!
F12	<ESC><Shift>oa	<ESC>@
Home	<ESC>[<Shift>h	<ESC>h
End	<ESC>[<Shift>k	<ESC>k
Ins	<ESC>[2	<ESC>+
Del	<ESC>[3	<ESC>-
Page Up	<ESC>[5	<ESC>?
Page Down	<ESC>[6	<ESC>/
Reset	<ESC><Shift>b	<ESC>R<ESC>r<ESC>R

## The Legend Bar

The legend bar is at the side of the Setup screen. The keys in the legend bar allow you to navigate through the various setup menus. The following table lists the keys found in the legend bar with their corresponding alternates and functions.

Legend Key	Alternate	Function
F1	Alt + H	Displays the General Help window. It can be enabled from anywhere in the BIOS.
Esc	Alt + X	Jumps to the Exit menu or returns to the Main menu from a submenu.
←	—	Selects the menu item to the left.
→	—	Selects the menu item to the right.
↑ or ↓	Arrow keys	Moves the cursor up and down between fields.
Tab	Enter	Moves the cursor to the next position available in the field.
Shift + Tab	—	Moves the cursor to previous position available in the field.
Minus key (–)	F5	Scrolls backward through the values for the highlighted field.
Plus key (+)	F6, space	Scrolls forward through the values for the highlighted field.
Home	PgUp	Moves the cursor to the field at the top of the window.
End	PgDn	Moves the cursor to the field at the bottom of the window.
F9	—	Sets the parameters for the current menu to their default values.
F10	—	Saves the configuration parameters and exits the Setup Utility.
Enter	—	Will select a sub menu or show a range of options for a field.

## General Help

In addition to the Item Specific Help window, the Setup Utility also provides a General Help screen. This screen can be called up from any menu by pressing [F1] or the [Alt] + [H] combination. The General Help screen lists the legend keys with their corresponding alternates and functions. To exit the help window, press the **Enter** or the **Esc** key.

## Main Menu

The main menu displays information about your mainboard and BIOS.

BIOS SETUP UTILITY	
<b>Main</b>	Advanced Boot Server SecurityExit
<b>System Overview</b>	Use [ENTER, [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to Configure System Time.
<b>AMIBIOS</b>	
Version : QSSC-98J_3A01	
Build Date:04/03/09	
Product: : ETegro Hyperion RS130 G3	
Serial No. : 01234567890123	
<b>Processor</b>	
Genuine Intel(R) CPU @ 0000 2.13GHz	
Speed :2133MHz	
Count :1	
<b>System Memory</b>	←→ Select Screen ↑ ↓ Select Item +/- Change Field Tab Select Field
Size :2040MB	
System Date [Thu 06/30/2009]	F1 General Help
System Time [13:40:55]	F10 Save and Exit ESC Exit
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Figure 8 – BIOS Main Menu

### AMIBIOS

**Version:** displays the BIOS version. Check this version number when updating BIOS from the manufacturer.

**Build Date:** displays the date the BIOS was created.

**Product Name:** designated name of the unit

**Board Serial Number:** displays the serial number of the board.

### Processor

**Type:** displays the type of CPU installed on the mainboard.

**Speed:** displays the maximum speed of the CPU.

**Count:** displays the number of installed processors.

### System Memory

**Size:** displays how much memory (DRAM) is installed on the mainboard.

**System Time:** scroll to this item to adjust the time.

**System Date:** scroll to this item to adjust the date.

## Advanced Menu

This option displays a table of items that define advanced information about your system.

**Warning!** Making incorrect settings to items on these pages may cause the system to malfunction. Unless you have experience adjusting these items, we recommend that you leave these settings at the default values. If making settings to items on these pages causes your system to malfunction or prevents the system from booting, open BIOS and choose “Load Optimal Defaults” in the Exit menu to boot up normally.

BIOS SETUP UTILITY	
Main	Advanced
Advanced Settings	Configure the CPU
Warning: Setting wrong values in below sections may cause system to malfunction.	
<ul style="list-style-type: none"> <li>▶ CPU Configuration</li> <li>▶ Memory Configuration</li> <li>▶ SATA Configuration</li> <li>▶ SuperIO Configuration</li> <li>▶ USB Configuration</li> <li>▶ PCI Configuration</li> <li>▶ General WHEA Configuration</li> </ul>	<div> <div>← →</div> <div>Select Screen</div> </div> <div> <div>↑ ↓</div> <div>Select Item</div> </div> <div> <div>+/-</div> <div>Change Option</div> </div> <div> <div>Tab</div> <div>Select Field</div> </div> <div> <div>F1</div> <div>General Help</div> </div> <div> <div>F10</div> <div>Save and Exit</div> </div> <div> <div>ESC</div> <div>Exit</div> </div>
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Figure 9 – BIOS Advanced Menu

## CPU Configuration

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY			
Advanced			
Configure advanced CPU settings		Disabled	for Windows XP
Intel (R) Xeon(R) CPU 0000 @ 2.13GHz			
CPUID	:106A2		
Frequency	:2.13GHz		
BCLK Speed	:133MHz		
Cache L1	:128KB		
Cache L2	:1024KB		
Cache L3	:4096KB		
Ratio Status	:Unlocked (Min:12, Max:16)		
Ratio Actual Value:16			
Hardware Prefetcher:	[Enabled]* <sup>2</sup>		
Adjacent Cache Line Prefetch:	[Enabled]* <sup>2</sup>	← →	Select Screen
Max CPUID Value Limit:	[Disabled]* <sup>1</sup>	↑ ↓	Select Item
Intel® Virtualization Tech	[Enabled]* <sup>2</sup>	+/-	Change Option
Execute-Disable Bit Capability	[Enabled]* <sup>2</sup>	Tab	Select Field
Intel(R) HT Technology	[Enabled]* <sup>2</sup>	F1	General Help
Active Processor Cores	[All]* <sup>3</sup>	F10	Save and Exit
Intel(R) SpeedStep(tm) tech	[Enabled]* <sup>2</sup>	ESC	Exit
Intel(R) TurboMode tech	[Enabled]* <sup>2</sup>		
C3 STATE	[Disabled]* <sup>2</sup>		
C6 STATE	[Enabled]* <sup>2</sup>		
C7 STATE	[Enabled]* <sup>2</sup>		
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Figure 10 – BIOS CPU Configuration

\*1: **Disabled**/Enabled: (Only for CPUs that support this feature.)

\*2: Disabled/**Enabled**: (Only for CPUs that support this feature.)

\*3: **All**/1/2



**Note:**  
Default values shown.

**CPUID:** Information only. Displays the CPUID.

**Frequency:** Information only. Displays the current frequency of the processor.

**Cache L1:** Information only. Displays the size of CPU L1.

**Cache L2:** Information only. Displays the size of CPU L2.

**Cache L3:** Information only. Displays the size of CPU L3.

**Ratio Status:** Display Min/Max ratio.

**Ratio Actual Value:** Information only. Display the ratio at which processors currently run.

**Hardware Prefetcher:** [Enabled] [Disabled] This should be enabled in order to enable or disable the Hardware Prefetcher Disable Feature. It is triggered by regular access patterns and helps predict future access, thereby overlapping memory latency with computation. By enabling concurrency between memory accesses and computation, the computational benefit of higher processor frequencies is maximized.

**Adjacent Cache Line Prefetch:** [Enabled] [Disabled] This should be enabled in order to enable or disable the Adjacent Cache Line Prefetch Disable Feature. The cache lines are fetched in pairs. This can be helpful if the data to be used would continue to the next cache line, causing less cache misses to maximize throughput. When the data is not in adjacent lines, then performance can be slowed, since there will be more cache misses and more time spent filling the cache lines.

**Max CPUID Value Limit:** [Enabled] [Disabled] Disabled for Windows XP Intel processors from the Pentium Pro onwards have a maximum CPUID input value of only 02h or 03h. The only exception is the Intel Pentium 4 with Hyper-Threading Technology (HTT). This is where the Max CPUID Value Limit BIOS feature comes in. It allows you to circumvent problems with older operating systems that do not support the Intel Pentium 4 processor with Hyper-Threading Technology. When enabled, the processor will limit the maximum CPUID input value to 03h when queried, even if the processor supports a higher CPUID input value.

**Virtualization Tech:** [Enabled] [Disabled] When enabled, aVMM can utilize the additional HW Caps. provided by Intel® Virtualization Tech. Note: A full reset is required to change the setting. Designed to support multiple software environments sharing same hardware resources, each software environment may consist of OS and applications.

**Execute- Disable Bit Capability:** [Enabled] [Disabled] When disabled, force the XD feature flag to always return 0. The Execute Disable Bit feature (XD bit) can prevent data pages from being used by malicious software to execute code. A processor with the XD bit feature can provide memory protection in either of the following modes: Legacy protected mode if Physical Address Extension (PAE) enabled. Intel® 64 mode when 64-bit extension technology is enabled.

**Intel(R) HT Technology:** [Enabled] [Disabled] When Disabled only one thread per enabled core is enabled. Intel HT Technology is a processor design that combines hardware multithreading with superscalar processor technology to allow multiple threads to issue instructions each cycle. SMT permits all thread contexts to simultaneously compete for and share processor resources.

**Active Processor Cores:** [All] [1] [2] Number of cores to enable in each processor package.

**Intel(R) SpeedStep(tm) tech:** [Enabled] [Disabled] Intel® Xeon® processors support the Geyserville3 (GV3) feature of the Enhanced Intel SpeedStep® technology. This feature changes the processor operating ratio and voltage similar to the Thermal Monitor 1 (TM1) feature. It must be used in conjunction with the TM1. The BIOS implements the GV3 feature in conjunction with the TM1 feature. This technology allows the clock speed of the processor to be dynamically changed by software.

**Intel(R) TurboMode tech:** [Enabled] [Disabled] Turbo mode allows processor cores to run faster than marked frequency in specific condition. Only for Nehalem processor The Turbo Mode feature allows extreme edition processors to program thresholds for power/current which can increase platform performance by 10%.

**Intel(R) CSTATE tech:** [Enabled] [Disabled] CState: CPU idle is set to C2/C3/C4.

**C3 State:** [Enabled] [Disabled] Nehalem C state action select.

**C6 State:** [Enabled] [Disabled] Nehalem C state action select.

**C7 State:** [Enabled] [Disabled] Nehalem C state action select.



## Memory Configuration

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY	
Advanced	
System Memory Settings	Enabled/Disabled
Current Memory Frequency	1333Mhz
Memory Frequency	[Auto]* <sup>1</sup>
Memory Mode	[Independent]* <sup>2</sup>
Throttling – Closed Loop	[Enabled]* <sup>3</sup>
Throttling – Open Loop	[Enabled]* <sup>3</sup>
←→ Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit	
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Figure 11 – BIOS Memory Configuration

\*<sup>1</sup>: **Auto**/Force DDR-800/Force DDR-1066/Force DDR-1333

\*<sup>2</sup>: **Independent**/Channel Mirroring/Lockstep

\*<sup>3</sup>: Disabled/**Enabled**

**Current Memory Frequency:** 800/1033 /1333 Mhz. Displays the current memory frequency.

**Memory Frequency:** [Auto] [Force DDR-800] [Force DDR-1033][Force DDR-1333] Forces a DDR3 frequency slower than the common tCK detected via SPD.

**Memory Mode:** [Independent] [Channel Mirroring][Lockstep][Sparing]. Independent: independent channel. Mirroring: mirrors channel space between channel. Lockstep: lockstep between channel 0 and 1. Spare: sparing mode.

**Throttling – Closed Loop:** [Disabled][Enabled]. BIOS to program Closed Loop throttling for memory components.

**Throttling–Open Loop:** [Disabled][Enabled]. BIOS to program Open Loop throttling for memory components.

## SATA Configuration

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY		
Advanced		
IDE Configuration		Options
ATA/IDE Configuration	[Compatible]* <sup>1</sup>	Disabled
Configure SATA#1 as	[IDE]* <sup>2</sup>	Compatible
		Enhanced
▶ SATA Port0	[Not Detected]	← → ↑ ↓ +/- F1 F10 ESC
▶ SATA Port1	[Not Detected]	
▶ SATA Port2	[Not Detected]	
▶ SATA Port3	[Not Detected]	
▶ SATA Port4	[Not Detected]	
▶ SATA Port5	[Not Detected]	
		Select Screen
		Select Item
		Change Option
		General Help
		Save and Exit
		Exit
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Figure 12 – BIOS SATA Configuration

\*<sup>1</sup>: Disabled/Compatible/Enhanced

\*<sup>2</sup>: IDE/RAID/AHCI

**SATA#1 Configuration:** [Disabled] [Compatible] [Enhanced].

**Configure SATA#1:** [IDE] [RAID] [AHCI]. [IDE] – Supports up to 4 SATA ports with Parallel ATA emulation. [AHCI] – Supports all SATA ports using the Advanced Host Controller Interface. [RAID] – Supports configuration of SATA ports for RAID via RAID configuration software. Disappears when the SATA#1 Configuration is disabled.

**SATA Port0-5:** [Not Detected] [Hard Disk] [ATAPI CDROM]. Information only. Unavailable when RAID Mode is enabled.

### Super IO Configuration

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY			
Advanced			
Configure Win627DHG Super IO Chipset		Allows	BIOS
Serial Port1 Address	[3F8/IRQ4]* <sup>1</sup>	or	Disable
Serial Port2 Address	[2F8/IRQ3]* <sup>1</sup>	Controller.	to Enable Floppy
		←→	Select Screen
		↑ ↓	Select Item
		+/-	Change Option
		F1	General Help
		F10	Save and Exit
		ESC	Exit
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Figure 13 – BIOS Superio IO Configuration

\*<sup>1</sup>: Disabled/[3F8/IRQ4]/[3E8/IRQ4]/[2E8/IRQ3]

**Super I/O Configuration:** enables you to configure the onboard serial ports.

**Serial Port1 Address:** This option is used to assign the I/O address and IRQ for the first onboard serial port. The default setting is [3F8/IRQ4].

**Serial Port2 Address:** This option is used to assign the I/O address and IRQ for the second onboard serial port. The default setting is [2F8/IRQ3].

## PCI Configuration

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY			
Advanced			
PCI Configuration		Options	
NIC1 – KAWELA	[Enabled with PXE]* <sup>2</sup>	Disabled	
NIC2 – KAWELA	[Enabled with PXE]* <sup>2</sup>	Enabled	
NIC1 MAC Address	[xx-xx-xx-xx-xx-xx]		
NIC2 MAC Address	[xx-xx-xx-xx-xx-xx]		
Current QPI Frequency	6.400GT		
QPI Links Speed	[Full-Speed]		
QPI Frequency	[Auto]* <sup>3</sup>		
QPI L0s and L1	[Disabled]* <sup>1</sup>	←→	Select Screen
		↑ ↓	Select Item
		+/-	Change Option
Crystal Beach / DMA	[Disabled]	F1	General Help
Intel VT-d	[Disabled]	F10	Save and Exit
SR-IOV Supported	[Disabled]	ESC	Exit
Active State Power-Management	[Disabled]		
ME Support	[Enabled]* <sup>1</sup>		
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Figure 14 – BIOS PCI Configuration

\*1: Disabled/Enabled

\*2: Disabled/Enabled with PXE/Enable without PXE

\*3: Auto/4.800GT/5.866GT/6.400GT)

**NIC1 – ZOAR:** [Disabled][Enabled with PXE][Enabled without PXE]. From IOH PCIE Port

**NIC2 – ZOAR:** [Disabled][Enabled with PXE] Enabled without PXE]. From IOH PCIE Port

**NIC1 MAC Address:** Information only. Displays the NIC1 MAC address.

**NIC2 MAC Address:** Information only. Displays the NIC2 MAC address.

**SAS Mezz SWRAID5:** [Disabled][Enabled]. This option only be displayed by SAS Mezzanine supported SKU.

**Current QPI Frequency:** 4.800 GT5.600 GT6.400 GT

**QPI Link Speed:** [Slow-Mode][Full-Speed]

**QPI Frequency:** [Auto][4.800 GT][5.600 GT][6.400 GT]

**QPI L0s and L1:** [Disabled][Enabled]

**Crystal Beach / DMA:** [Disabled][Enabled]

**Crystal Beach / DCA:** [Disabled][Enabled]. It is present if [Crystal Beach / DMA] is [Enabled].

**Intel VT-d:** [Disabled][Enabled]

**SR-IOV Supported:** [Disabled][Enabled]

**Active State Power- Management:** [Disabled][Enabled]

**ME Support:** [Disabled][Enabled]

### General WHEA Configuration

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY	
Advanced	
General WHEA Configuration	Enable or disable Windows Error Architecture. Hardware
WHEA Support [Enabled]* <sup>1</sup>	
<div>←→ Select Screen</div> <div>↑ ↓ Select Item</div> <div>+/- Change Option</div> <div>F1 General Help</div> <div>F10 Save and Exit</div> <div>ESC Exit</div>	
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Figure 15 – BIOS General WHEA Configuration

\*1: Disabled/Enabled

This menu allows you to enable the Windows Hardware Error Architecture.

**WHEA Support:** Enables or disables the Windows Hardware Error Architecture (WHEA)

## USB Configuration

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY	
Advanced	
<b>USB Configuration</b>	Enables support for
USB Devices Enabled : 1 Keyboard, 1 Mouse	Legacy USB. AUTO Option disables Legacy support if no USB devices are connected.
Legacy USB Support [Disabled]* <sup>1</sup>	
USB Functions [Enabled]* <sup>2</sup>	
USB 2.0 Controller [Enabled]* <sup>1</sup>	
► USB Mass Storage Device Configuration	
	← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit
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Figure 16 – BIOS USB Configuration

\*<sup>1</sup>: Disabled/Enabled/Auto

\*<sup>2</sup>: Disabled/2 USB Ports/4 USB Ports/6 USB Ports/8 USB Ports/**12 USB Ports**

This menu enables you to configure USB devices.

**USB Devices Enabled:** displays USB devices currently detected.

**Legacy USB Support:** enables support for legacy USB devices. Select Auto to disable legacy support if no USB devices are connected.

## Boot Menu

This page enables you to set POST boot parameters.

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY	
<b>Main</b>	<b>Advanced</b>
<b>Boot</b>	<b>Server Security Exit</b>
<b>Boot Settings</b>	Configure Settings during System Boots.
<ul style="list-style-type: none"> <li>► Boot Settings Configuration</li> <li>► Boot Device Priority</li> <li>► Hard Disk Drives</li> <li>► Network Device</li> </ul>	<div style="display: flex; justify-content: space-between;"> <div> ←→ ↑ ↓ Enter F1 F10 ESC </div> <div> Select Screen Select Item Go to Sub Screen General Help Save and Exit Exit </div> </div>
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Figure 17 – BIOS Boot Menu

## Boot Settings Configuration

Select this item and press **Enter** to view the following submenu items:

BIOS SETUP UTILITY	
<b>Boot</b>	
<b>Boot Settings Configuration</b>	Disabled: Displays normal POST messages.
<div style="display: flex; justify-content: space-between;"> <div> Quiet Boot  Bootup Num-Lock  Wait For 'F1' If Error  POST Timeout </div> <div> [Disabled] *<sup>1</sup>  [On] *<sup>2</sup>  [Enabled] *<sup>3</sup>  [5 seconds] *<sup>4</sup> </div> </div>	Enabled: Displays OEM Logo instead of POST Messages.
	<div style="display: flex; justify-content: space-between;"> <div> ←→ ↑ ↓ +/- F1 F10 ESC </div> <div> Select Screen Select Item Change Option General Help Save and Exit Exit </div> </div>
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Figure 18 – BIOS Boot Settings Configuration

\*<sup>1</sup>: **Disabled**/Enabled

\*<sup>2</sup>: Off/**On**

## — BIOS

\*<sup>3</sup>: Disabled/**Enabled**

\*<sup>3</sup>: Select a time period before POST times out

**Quiet Boot:** enable this item to display the OEM logo instead of POST messages. When disabled, normal POST messages appear.

**Bootup Num-Lock:** sets the state of the keyboard keypad on boot. When set to On, the keypad functions as a keypad. When set to Off, the keypad functions as auxiliary cursor movement keys.

**Wait For 'F1' If Error:** enable this item to have the system prompt you to press F1 if an error occurs. This enables you to view the error.

## Boot Device Priority

Select this item and press **Enter** to view the following submenu items:

BIOS SETUP UTILITY		
Boot		
Boot Device Priority		Specifies the boot sequence from the available devices.
1st Boot Device	[HDD:3M-ST320410A]	A device enclosed in parenthesis has been disabled in the corresponding type menu.
2nd Boot Device	[Network:IBA GB Sio]	
3rd Boot Device	[Network:IBA GB Sio]	
		<div> <div>←→</div> <div>Select Screen</div> </div> <div> <div>↑ ↓</div> <div>Select Item</div> </div> <div> <div>+/-</div> <div>Change Option</div> </div> <div> <div>F1</div> <div>General Help</div> </div> <div> <div>F10</div> <div>Save and Exit</div> </div> <div> <div>ESC</div> <div>Exit</div> </div>
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Figure 19 – BIOS Boot Device Priority



## Network Drives

Select this item and press **Enter** to view the following submenu items:

BIOS SETUP UTILITY		
Boot		
Network Drives		Specifies the boot sequence from the available devices.
1st Drive	[Network:IBA GE Sio]	
2nd Drive	[Network:IBA GB Sio]	
3rd Drive	[Network:IBA GB Sio]	
		←→ Select Screen
		↑ ↓ Select Item
		+/- Change Option
		F1 General Help
		F10 Save and Exit
		ESC Exit
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**Figure 20 – Network Drives**

Xxx Drive: [Device Name] [Disabled] Specifies the boot sequence form the available device

## Server Menu

This page enables you to configure Server parameters.

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY			
Main	Advanced	Boot	Server Security Exit
IPMI Information		Configure Remote Access.	
Status Of BMC	Working		
IPMI Specification Version	2.0		
BMC Firmware Version	00 00.03		
► Set BMC LAN Configuration			
► Remote Access Configuration			
Restore on AC Power Loss	[Power Off] * <sup>1</sup>		
Event Control Interface			
View Event Log			
Clear BMC System Event Log			
Event logging	[Enabled]* <sup>1</sup>		
ECC Event Logging	[Enabled]* <sup>1</sup>		
PCI Event Logging	[Enabled]* <sup>2</sup>		
QPI Event Logging	[Enabled]* <sup>2</sup>		
IOH Internal Event Logging	[Enabled]* <sup>2</sup>		
NMI on Error	[Fatal]* <sup>3</sup>		
		← →	Select Screen
		↑ ↓	Select Item
		Enter	Go to Sub Screen
		F1	General Help
		F10	Save and Exit
		ESC	Exit
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Figure 21 – Server Menu

\*<sup>1</sup>: **Power Off**/Power On/Last State

\*<sup>2</sup>: Disabled/**Enabled**

\*<sup>3</sup>: Disabled/Correctable/Uncorrectable/**Fatal**

## BMC LAN Configuration

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY	
Server	
LAN Configuration	Enter for IP Address Configuration
Channel Number [01] <sup>*1</sup> Channel Number Status: Channel number is OK	
DHCP Enabled [Disabled] <sup>*2</sup>	←→ Select Screen
IP Address [xxx.xxx.xxx.xxx]	↑ ↓ Select Item
Subnet Mask [xxx.xxx.xxx.xxx]	→+ Change Option
GateWay Address [xxx.xxx.xxx.xxx]	F1 General Help
Current MAC address in BMC: xx.xx.xx.xx.xx.xx	F10 Save and Exit
	ESC Exit
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Figure 22 – BMC LAN Configuration

\*<sup>1</sup>: Default command value is 01, user should not change it.

\*<sup>2</sup>: **Disabled**/Enabled

Remote Access Configuration

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY	
Server	
Configure Remote Access Type and parameters	Select Remote Access type.
Remote Access [Enabled]* <sup>1</sup>	
Serial port number [COM1]	
Base Address, IRQ [3F8h,4]	
Serial Port Mode [115200 8,n,1]* <sup>2</sup>	
Flow Control [None]* <sup>3</sup>	←→ Select Screen
Redirection After BIOS POST [Always]* <sup>4</sup>	↑ ↓ Select Item
Terminal Type [ANSI]* <sup>5</sup>	+/- Change Option
	F1 General Help
	F10 Save and Exit
	ESC Exit
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Figure 23 – BIOS Remote Access Configuration

\*<sup>1</sup>: Disabled/Enabled

\*<sup>2</sup>: 115200 8,n,1/57600 8,n,1/38400 8,n,1/19200 8,n,1/9600 8,n,1

\*<sup>3</sup>: None/Hardware/Software

\*<sup>4</sup>: Disabled/Boot Loader/ Always

\*<sup>5</sup>: ANSI/VT100/VT-UTF8

## Security Menu

This page enables you to set the security parameters.

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY			
Main	Advanced	Boot	Server Security Exit
Security Settings		Install or Change the	
Supervisor Password : Not Installed			
User Password : Not Installed			
Change Supervisor Password			
Change User Password			
		←→ Select Screen	
		↑ ↓ Select Item	
		Enter Go to Submenu	
		F1 General Help	
		F10 Save and Exit	
		ESC Exit	
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**Figure 24 – BIOS Security Menu**

**Supervisor Password:** displays whether the supervisor password is installed or not.

**User Password:** displays whether the user password is installed or not.

**Change Supervisor/User Password:** you can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

If you highlight these items and press **Enter**, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press **Enter** after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press **Enter** after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

## Exit Menu

Scroll to this item and press **Enter** to view the following screen:

BIOS SETUP UTILITY	
Main	Advanced Boot Server Security <b>Exit</b>
<b>Exit Options</b>	Exit system setup After saving the changes.
Save Changes and Exit	
Discard Changes and Exit	
Discard Changes	
Load Optimal Defaults	F10 key can be used for this operation.
	←→ Select Screen
	↑ ↓ Select Item
	+/- Change Option
	F1 General Help
	F10 Save and Exit
	ESC Exit
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**Figure 25 – BIOS Exit Menu**

**Save Changes and Exit:** Highlight this item and press **Enter** to save any changes that you have made in the Setup utility and exit the Setup utility. When the Save Changes and Exit dialog box appears, press **Y** to save the changes and exit, or press **N** to return to the setup main menu.

**Discard Changes and Exit:** Highlight this item and press **Enter** to discard any changes that you have made in the Setup utility and exit the Setup utility. When the Discard Changes and Exit dialog box appears, press **Y** to discard changes and exit, or press **N** to return to the setup main menu.

**Discard Changes:** select this item and press **Enter** to discard any changes you have made without leaving the setup utility.

**Load Optimal Defaults:** if you highlight this item and press **Enter**, a dialog box asks if you want to install optimal settings for all the items in the Setup utility. Press the **Y** key to indicate Yes, and then press **Enter** to install the optimal settings.

The optimal settings default values are quite demanding and your system might not function properly if you are using slower memory chips or other kinds of low-performance components.

This concludes the third chapter. The next chapter covers the BMC software agent.

## About ESMS

The Embedded Server Management System (ESMS) is a multi-function management application that provides administrators an efficient utility for remotely managing single or multiple clients.

ESMS provides two console modes—**Web Console** and **Advance Console**. The web console mode provides simple management function to do basic management while the Advance console mode, Java Remote Supervisor Management (Java RSM), supports more advanced management functions. The first half of this chapter will guide you how to use Web console and the second half of this chapter guide you how to use Advance console. In combination assists users a comprehensive understanding of using the ESMS.

The following web browsers are supported:

- Internet Explorer 6 and 7
- Mozilla 1.7.13 or later
- Firefox 1.5 or later

## ESMS Flow Diagram

The following diagram describes the process flow for the two console modes supported by ESMS.

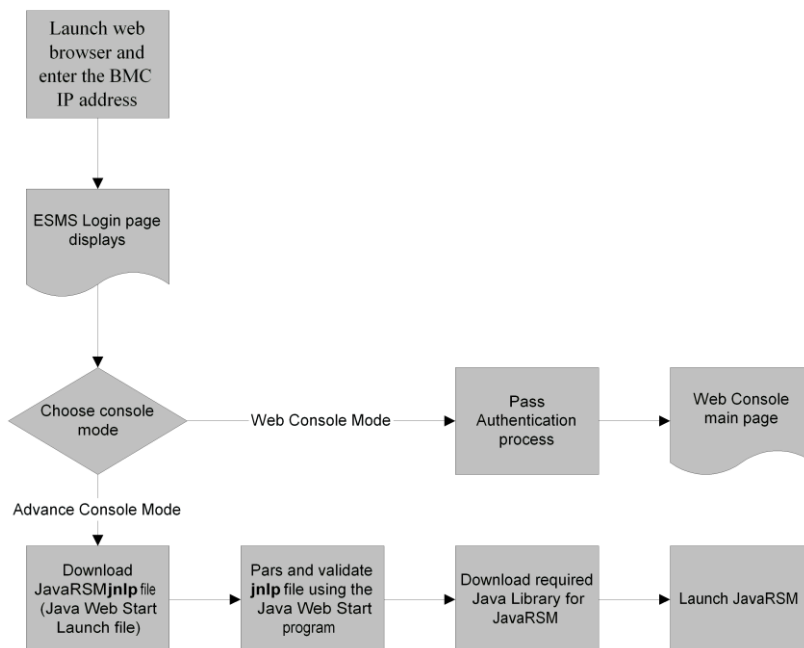


Figure 26 – ESMS Flow Diagram

## Enter IP address for Authentication

System default IP address sources from **Dynamic Host Configuration Protocol** (DHCP) first. If DHCP server is not detected, the BMC IP will be assigned to <https://192.168.1.2/> (or URL) instead of DHCP.

When connecting to the ESMS using a web browser, SSL is automatically activated after the required mode is selected and the user login fields are displayed. This authentication with SSL protection prevents unauthorized intruders such as hackers from gaining access to the ESMS web server. If authentication is passed, the user can manage the server by privilege. At the same time, the PHP (PHP Hypertext Preprocessor) records all user information, including user ID and privilege.

## Setting the KVM TCP Ports on the Network

Before using the ESMS, ensure that the firewall settings are configured to allow access to the following ports:

- Remote KVM—8890 (TCP), 8900 (TCP)
- Discovery—5000 (Multicast), 2000 (UDP)
- Virtual Storage—9000 (TCP)

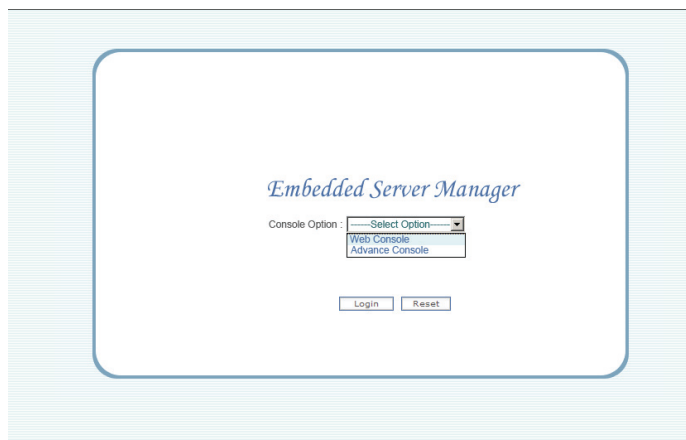


**Note:**

The ESMS requires access to the system's TCP ports. For information on configuring firewall settings to allow TCP port access, refer to your firewall software user's guide.

## Choose Console Mode

Two modes of operation are available to access the ESMS application—Web Console and Advance Console.



**Figure 27 – Console Mode Screen**

## Using ESMS Web Console Mode

This mode provides access to Web Console ESMS functions only and is used for minor systems tasks and monitoring purposes for a single server.

ESMS Web Console supports the following functions:

- Web Console

The following figure displays the user authentication web page in Web Console mode.



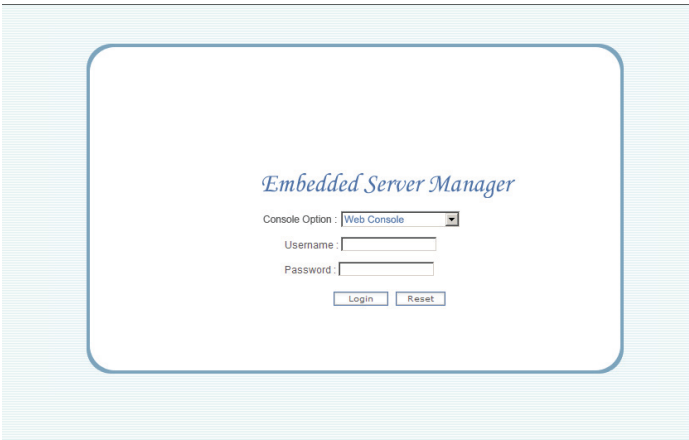


Figure 28 – Web Console Authentication

The default username is **root**. The default password is **changeme**.  
After passing authentication, the following web page appears.

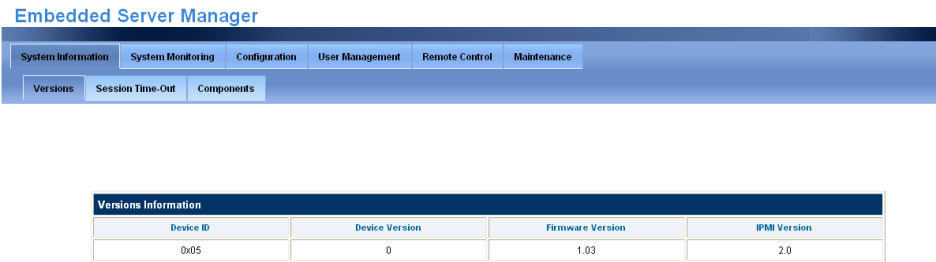


Figure 29 – Versions Screen

Web Console provides the basic management utility for the user to view system information and events, perform simple system tasks and modify system configuration of managed servers remotely.

## System Information

The System Information tab enables you to view the Version Information, enable Session Time-Out and interval, and view Components options. Click the **System Information** tab to view the following web page.

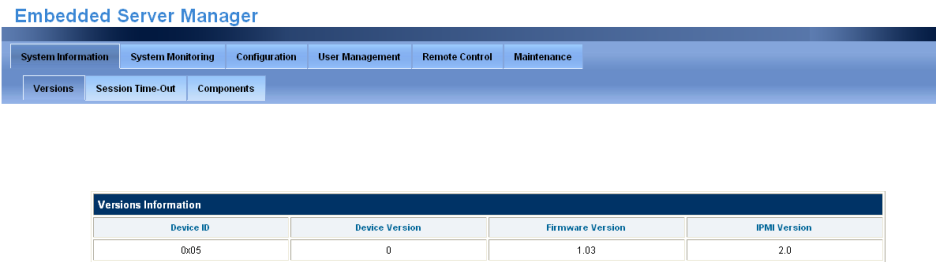


Figure 30 – System Information Screen

## Versions

Click the **Versions** tab to view Version Information including: the Device ID, Device Version, Firmware Version, and IPMI Version numbers.

The screenshot shows the 'Embedded Server Manager' interface. At the top, there is a navigation bar with tabs: System Information, System Monitoring, Configuration, User Management, Remote Control, and Maintenance. Below this, there is a sub-navigation bar with tabs: Versions, Session Time-Out, and Components. The 'Versions' tab is selected. The main content area displays 'Versions Information' in a table format.

Device ID	Device Version	Firmware Version	IPMI Version
0x05	0	1.03	2.0

Figure 31 – Version Information

## Session Time-Out

1. Click the **Session Time-Out** tab.

The screenshot shows the 'Embedded Server Manager' interface with the 'Session Time-Out' tab selected. The main content area displays 'Session Time-Out Settings'. It includes a 'Session Time-Out' section with radio buttons for 'Enable' (selected) and 'Disable'. Below this is a 'Session Time' section with a dropdown menu set to '15 minutes'. At the bottom, there are 'Submit' and 'Reset' buttons.

Figure 32 – Session Time Out Settings

2. Click **Enable** and select a timeout value from the drop-down list.
3. Click **Disable** to prevent the embedded web server from logging off.
4. Click **Submit** to save the changes.

## Components

Click the **Components** tab to view Server Board, CPU and Memory Information.

### Server Board Information

Includes Serial Number, BIOS Version, Product ID, Manufacturer, and Manufacture Date.

### CPU Information

Includes CPU ID, Status, Socket, Manufacturer, Model and Frequency.

### Memory Information

Includes Memory Module, Status, Socket, Module Size, Type and Frequency.

## Embedded Server Manager



Server Board Information				
Serial Number	BIOS Version	Product ID	Manufacturer	Manufacture Date
12345678912345	S2A_3A03	S2A0R1-2A0/QSSC-2A0	Quanta	2009/02/12 21:46

CPU Information			
Socket	Manufacturer	Model	Frequency
CPU 1	Intel	Nehalem-EP	2000MHz
CPU 2	Not Present	Not Present	0MHz

Memory Information			
Socket	Module Size	Model	Frequency
DIMM A1	2048MB	DDR-3 RAM	1333MHz
DIMM B1	0MB	Not Present	0MHz
DIMM C1	0MB	Not Present	0MHz
DIMM D1	0MB	Not Present	0MHz
DIMM E1	0MB	Not Present	0MHz
DIMM F1	0MB	Not Present	0MHz

Figure 33 – Components Screen

# System Monitoring

The System Monitoring tab enables the administrator to view data about the system, including LED, system, fan, temperature and voltage status, and event logs. Click the **System Monitoring** tab to view the following web page.

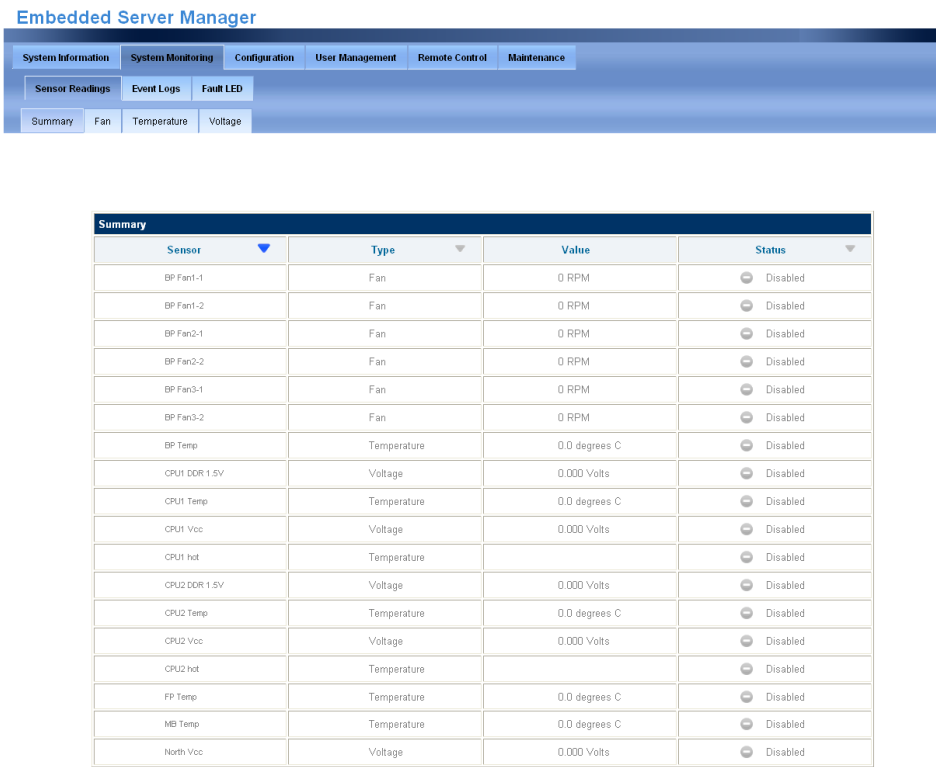


Figure 34 – System Monitoring Screen

## Sensor Readings

The **Sensor Readings** tab provides information about system hardware such as the fan speed, internal temperature, and voltage.

### Summary

Click the **Summary** tab to display a brief overview of system hardware status.

## Embedded Server Manager



Summary			
Sensor ▼	Type ▼	Value	Status ▼
BP Fan1-1	Fan	0 RPM	Disabled
BP Fan1-2	Fan	0 RPM	Disabled
BP Fan2-1	Fan	0 RPM	Disabled
BP Fan2-2	Fan	0 RPM	Disabled
BP Fan3-1	Fan	0 RPM	Disabled
BP Fan3-2	Fan	0 RPM	Disabled
BP Temp	Temperature	0.0 degrees C	Disabled
CPU1 DDR 1.5V	Voltage	0.000 Volts	Disabled
CPU1 Temp	Temperature	0.0 degrees C	Disabled
CPU1 Vcc	Voltage	0.000 Volts	Disabled
CPU1 hot	Temperature		Disabled
CPU2 DDR 1.5V	Voltage	0.000 Volts	Disabled
CPU2 Temp	Temperature	0.0 degrees C	Disabled
CPU2 Vcc	Voltage	0.000 Volts	Disabled
CPU2 hot	Temperature		Disabled
FP Temp	Temperature	0.0 degrees C	Disabled
MB Temp	Temperature	0.0 degrees C	Disabled
North Vcc	Voltage	0.000 Volts	Disabled

**Figure 35 – System Monitoring Summary**

- **Fan Status:** indicates the health status of the CPU fans and SYS fans for CPUs and SYS that are installed.
- **Temperature Status:** indicates the status for such items as the baseboard and processor temperature, and thermal control.
- **Voltage Status:** indicates the voltage status for components such as the baseboard, processor Vcc, and CPUs installed.



**Note:**

This page will automatically update every 20 seconds.

**Fan**

Click the **Fan** tab to view CPU and SYS fan information.

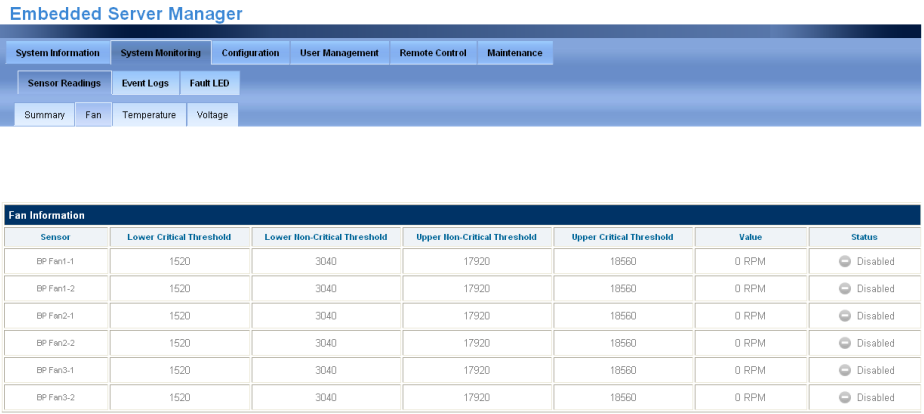



Figure 36 – System Monitoring Fan


 **Note:**  
This page will automatically update every 10 seconds.

**Temperature**

Click the **Temperature** tab to view system component temperature information.



Figure 37 – System Monitoring Temperature

 **Note:**  
This page will automatically update every 10 seconds.

## Voltage

Click the **Voltage** tab to view system component voltage information.

Embedded Server Manager

System Information	System Monitoring	Configuration	User Management	Remote Control	Maintenance
Sensor Readings	Event Logs	Fault LED			
Summary	Fan	Temperature	Voltage		

Voltage Information						
Sensor	Lower Critical Threshold	Lower Non-Critical Threshold	Upper Non-Critical Threshold	Upper Critical Threshold	Value	Status
CPU1 Vcc	0.712	0.720	1.384	1.416	0.000 Volts	Disabled
CPU2 Vcc	0.712	0.720	1.384	1.416	0.000 Volts	Disabled
CPU1 DDR 1.5V	1.352	1.424	1.568	1.648	0.000 Volts	Disabled
CPU2 DDR 1.5V	1.352	1.424	1.568	1.648	0.000 Volts	Disabled
North Vcc	0.992	1.040	1.152	1.208	0.000 Volts	Disabled

Figure 38 – System Monitoring Voltage



**Note:**  
This page will automatically update every 10 seconds.

## Event Logs

Click the **Event Logs** tab to view reports about system events.

Embedded Server Manager

System Information	System Monitoring	Configuration	User Management	Remote Control	Maintenance
Sensor Readings	Event Logs	Fault LED			

Save Event Logs Clear Event Logs

Event Logs		
Severity	Time Stamp	Description
Critical	2009/02/24 14:51:07	[Power Unit] : Power Off / Power Down Asserted
Warning	2009/02/24 14:51:06	[FP buttons] : Power Button pressed Asserted
Information	2009/02/24 14:51:06	[FP buttons] : Power Button pressed Deasserted
Critical	2009/02/24 14:50:19	[BP Fan3-2] : Lower Critical - going low - Asserted (Value = 0 RPM / Threshold = 1520 RPM)
Critical	2009/02/24 14:50:19	[BP Fan3-1] : Lower Critical - going low - Asserted (Value = 0 RPM / Threshold = 1520 RPM)
Critical	2009/02/24 14:50:18	[BP Fan1-2] : Lower Critical - going low - Asserted (Value = 0 RPM / Threshold = 1520 RPM)

Figure 39 – System Monitoring Event Logs

- **Severity:** indicates the nature of the event (non-recoverable, critical, warning, information, return to ok, unspecified)
- **Time Stamp:** indicates the time and date the event occurred.
- **Description:** describes the event in more detail.
- **Save Event Logs:** save the log to disk. You are prompted to save the event log text file to disk.
- **Clear Event Logs:** clear the current log.

## **Fault LED**

1. Click the **Fault LED** tab to view the following screen.

Embedded Server Manager

System Information	System Monitoring	Configuration	User Management	Remote Control	Maintenance
Sensor Readings	Event Logs	Fault LED			

Fault LED	
Current Status :	Off
Fault LED :	<input type="radio"/> Turn Off
<input type="button" value="Submit"/>	

**Figure 40 – System Monitoring Fault LED**

2. Click on the desired setting.
  - **Turn Fault LED Off:** sets the fault LED on the server to off.



# Configuration

The **Configuration** tab enables you to set Network, Platform Event Filter, E-mail Notification, Clock and Generate New and Upload SSL Certificate.

Embedded Server Manager

System Information System Monitoring **Configuration** User Management Remote Control Maintenance

Network Event Filter E-mail Notification Clock SSL Certificate

**Network Settings**

DHCP : ☐ Enable ☒ Disable

IP Address : 192 . 168 . 1 . 211

Net Mask : 255 . 255 . 255 . 0

Gateway : 192 . 168 . 1 . 254

MAC Address : 00 : 23 : 88 : 03 : E0 : 26

Submit Reset

**DNS Settings**

Host Name : ESMS00238B03E026

DNS Server : 192 . 168 . 1 . 254

Submit Reset

Figure 41 – Configuration

## Network

1. Click the **Network** tab to set network parameters.

Embedded Server Manager

System Information System Monitoring **Configuration** User Management Remote Control Maintenance

Network Event Filter E-mail Notification Clock SSL Certificate

**Network Settings**

DHCP : ☐ Enable ☒ Disable

IP Address : 192 . 168 . 1 . 211

Net Mask : 255 . 255 . 255 . 0

Gateway : 192 . 168 . 1 . 254

MAC Address : 00 : 23 : 88 : 03 : E0 : 26

Submit Reset

**DNS Settings**

Host Name : ESMS00238B03E026

DNS Server : 192 . 168 . 1 . 254

Submit Reset

Figure 42 – Configuration Network

- **DHCP:** When checked enable DHCP server, an IP address is automatically assigned.
- **IP Address:** enter a specific IP address to be assigned.
- **Net Mask:** enter the Net Mask of the LAN.
- **Gateway:** enter the Gateway of the LAN.
- **Mac Address:** this field displays the Mac address.

— Using the ESMS

- **Host Name:** enter the Host Name of the LAN, if required.
  - **DNS Server:** enter the DNS Server address of the LAN, if required.
2. Click **Submit** to save the changes.

**Event Filter**

The **Event Filter** tab allows you to modify the Trap Receiver Destination Address.  
Click the **Event Filter** tab to display the following web page.

Embedded Server Manager

System InformationSystem MonitoringConfigurationUser ManagementRemote ControlMaintenance

NetworkEvent FilterE-mail NotificationClockSSL Certificate

Event Filter Settings

Event Filter Global Control :

☐ Enable ☒ Disable

Event Filter Global Action Configuration :

☒ Enable Power Off Action

☒ Enable Power Cycle Action

☒ Enable Power Reset Action

☒ Enable Diagnostic Interrupt Action

☒ Enable Alert ( SNMP Trap ) Action

☒ Enable E-mail Notification Action

Alert ( SNMP Trap ) Receiver Configuration

Community :public

IP Address :

①

②

③

④

Event Filter Policy

ID	Sensor	Power Control	Power Control Type	Diagnostic Interrupt	Alert ( SNMP Trap )	E-mail Notification
①	All	<input checked="" type="checkbox"/>	Power Off	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
②	----- Select -----	<input type="checkbox"/>	----- Select -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
③	----- Select -----	<input type="checkbox"/>	----- Select -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
④	----- Select -----	<input type="checkbox"/>	----- Select -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
⑤	----- Select -----	<input type="checkbox"/>	----- Select -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SubmitReset

Figure 43 – Configuration Event Filter

**E-mail Notification**

The **E-mail Notification** tab enables you to configure e-mail SMTP server sender and receiver details for E-mail system events notification.  
Click the **E-mail Notification** tab to display the following web page.

80

Embedded Server Manager

System Information System Monitoring Configuration User Management Remote Control Maintenance

Network Event Filter E-mail Notification Clock SSL Certificate

---

**E-Mail Notification Settings**

SMTP Server Address :

Mail Sender Address :

Mail Receiver Address List :

①	<input type="text"/>	②	<input type="text"/>
③	<input type="text"/>	④	<input type="text"/>
⑤	<input type="text"/>	⑥	<input type="text"/>
⑦	<input type="text"/>	⑧	<input type="text"/>
⑨	<input type="text"/>	⑩	<input type="text"/>

Figure 44 – Configuration E-mail Notification

Enter server, sender, and receiver details and click **Submit**.

### Clock

The Clock page displays the server Date and Time.

Click the **Clock** tab to view the following web page.

Embedded Server Manager

System Information System Monitoring Configuration User Management Remote Control Maintenance

Network Event Filter E-mail Notification Clock SSL Certificate

---

**Clock**

Date :	01 / 01 / 1970 (MM / DD / YYYY)
Time :	15 : 45 : 28

Figure 45 – Configuration Clock

### SSL Certificate

The SSL Certificate page enables the Administrator to generate a new CSR (Certificate Signing Request) key automatically or upload the key.

Click the **SSL Certificate** tab to view the following web page.

Embedded Server Manager

System Information System Monitoring Configuration User Management Remote Control Maintenance

Network Event Filter E-mail Notification Clock SSL Certificate

Generate New Certificate ▾

**SSL Certificate Settings**

Country Name :

Organization Name :

Organizational Unit Name :

Locality Name :

State or Province Name :

Common Name :

E-mail Address :

Figure 46 – Configuration SSL Certification

### Generating a CSR

Before you can create the SSL Certificate, you must first generate a CSR (Certificate Signing Request) on your server. A CSR is a body of text that contains encoded information specific to your company and domain name. You can generate a CSR or upload a manually created CSR.

Embedded Server Manager

System Information System Monitoring Configuration User Management Remote Control Maintenance

Network Event Filter E-mail Notification Clock SSL Certificate

Generate New Certificate ▾

**SSL Certificate Settings**

Country Name :

Organization Name :

Organizational Unit Name :

Locality Name :

State or Province Name :

Common Name :

E-mail Address :

Figure 47 – Configuration Generating a CSR

Follow these instructions to generate and upload a CSR:

1. Fill in the information in the fields provided.
  - **Country Name:** the two-digit code for a country. Select the country from the drop-down list.
  - **Organization Name:** legal Company or Personal Name, as legally registered in your locality.
  - **Organization Unit Name:** whichever branch of your company is ordering the certificate.
  - **Locality Name:** city or location (for example, “Los Angeles”).
  - **State or Province Name:** state (for example, “California”).
  - **Common Name:** the domain name for which you are requesting the SSL certificate.
  - **E-mail Address:** your email address.

2. Click **Submit**.
3. A CSR key is generated and uploaded automatically.

### **Uploading a Manually Created CSR**

1. Click the **Browse** button next to Certificate Upload, and browse to the location of the saved key, for example **Savekey.pem**.

Embedded Server Manager

System Information System Monitoring Configuration User Management Remote Control Maintenance

Network Event Filter Email Notification Clock SSL Certificate

Upload Certificate

SSL Certificate Settings

Upload Certificate :  Browse... Upload

Upload Private Key :  Browse... Upload

**Figure 48 – Configuration Uploading a Manually Created CSR**

2. Click **Upload** to upload the key.
3. Once the upload is completed, close the browser.
4. Open a new browser and log in. The certificate file is the CSR previously uploaded.
5. After you have generated or uploaded the CSR, click **Submit** to save the changes.

## **User Management**

The User Management web page enables the administrator to change the administrative account password, and to add, modify, and delete users and set user privileges.

### **User Accounts**

Click the **User Accounts** tab to view the following web page.

Embedded Server Manager

System Information System Monitoring Configuration User Management Remote Control Maintenance

User Accounts ADS Configuration

Add Edit Delete Change Password

User Accounts List

	ID	Name	E-mail	Phone	Group	Status
<input type="radio"/>	0	root	service@quantatw.com	886-3-327-2345	Administrator	✓
<input type="radio"/>	1	anonymous			Administrator	✓

**Figure 49 – User Management User Accounts**

### Adding an user account

1. Click **Add** button. The following screen appears.

Embedded Server Manager

System Information System Monitoring Configuration User Management Remote Control Maintenance

User Accounts ADS Configuration

[Back to User Accounts List](#)

Add User Information	
User Name :	<input type="text"/> <input type="button" value="Check"/>
Password :	<input type="password"/>
Confirm Password :	<input type="password"/>
E-mail :	<input type="text"/>
Phone :	<input type="text"/>
Privilege :	----- Select -----
Status :	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
<input type="button" value="Submit"/>	

**Figure 50 – User Management Adding User Accounts**

2. Type the Username in the text box.
3. Type the Password in the text box and type it again for confirmation.
4. Type the E-mail address in the text box.
5. Type the Phone number in the text box
6. Select the privilege to assign to this user administrator
  - Administrator
  - Operator
  - User
  - Call Back
7. Select Status to Enable or Disable the user account
8. Click **Submit** to save the user.

### Editing User Information

After a User is added, the administrator can change the user's password, e-mail, phone, and privileges, prevent the user access, or delete the user.

Embedded Server Manager

System Information System Monitoring Configuration **User Management** Remote Control Maintenance

User Accounts ADS Configuration

Add Edit Delete Change Password

User Accounts List

	ID	Name	E-mail	Phone	Group	Status
<input type="radio"/>	0	root	service@quantatw.com	886-3-327-2345	Administrator	✓
<input type="radio"/>	1	anonymous			Administrator	✓
<input type="radio"/>	2	test	test@quantatw.com		Administrator	✓

Figure 51 – User Management Editing User Information

- Edit
  - **Change E-mail:** Click to change the user's mail.
  - **Change Phone:** Click to change the user's phone.
  - **Change Privilege:** Click to change the user's privileges.
  - **Disable:** Click to prevent the user access to the server.
- **Delete:** Click to remove the user from the system.
- **Change Password:** Click to change the user's password.

### Changing Password

Follow these steps to change password.

1. Under the username **root**, click **Change Password** button. The following screen appears.

Embedded Server Manager

System Information System Monitoring Configuration **User Management** Remote Control Maintenance

User Accounts ADS Configuration

Back to User Accounts List

Change Password

User Name : root

New Password :

Confirm Password :

Submit

Figure 52 – User Management Changing Password

2. Type the new password.
3. Type the password again for confirmation.
4. Click **Submit** to save the new password.

## ADS Configuration

The ADS Configuration web page enables the administrator to configure an Active Directory Server (ADS).

The screenshot shows the 'Embedded Server Manager' interface. At the top, there is a navigation bar with tabs: 'System Information', 'System Monitoring', 'Configuration', 'User Management', 'Remote Control', and 'Maintenance'. Below this, a sub-navigation bar highlights 'User Accounts' and 'ADS Configuration'. The main content area is titled 'ADS Configuration Settings' and contains the following fields:

- Upload Certificate :** A text input field followed by a 'Browse...' button.
- Primary DNS :** A text input field with a dotted separator and a small input box.
- Secondary DNS :** A text input field with a dotted separator and a small input box.
- Root Domain :** A text input field.

At the bottom of the form are two buttons: 'Submit' and 'Reset'.

**Figure 53 – User Management ADS Configuration**

ADS Configuration requires a Domain Name Server (DNS), an Active Directory Server (ADS), a Certificate Authority Server (CAS), and an AD certificate.

1. In the ADS Configuration page, enter the file path of the CA certificate or browse to the location.
2. Click **Browse** to upload the Certificate exported from the AD server.
3. Enter Primary DNS (Domain Name Server IP) and Root Domain (AD server Domain).
4. In the Clock Settings page, ensure BMC shows the same time as the AD Server.
5. Click **Submit**.
6. Log off, and log in to the Web GUI with the username and password you set in AD server.



## Remote Control

Click the **Remote Control** tab to view the following web page.

### Remote Power Control

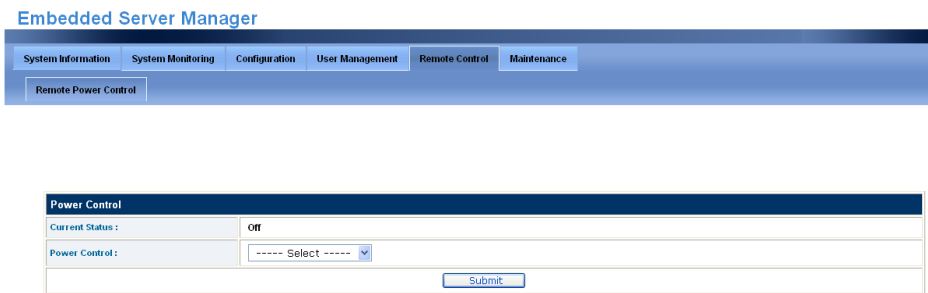
This feature enables the administrator to power on or power down the system remotely.



**Note:**

The IPMI connector must be connected to enable this function.

Click the **Remote Power Control** tab to view the following web page.

The screenshot shows the 'Embedded Server Manager' web interface. At the top, there is a navigation bar with tabs: 'System Information', 'System Monitoring', 'Configuration', 'User Management', 'Remote Control', and 'Maintenance'. Below this, a sub-tab 'Remote Power Control' is selected. The main content area is titled 'Power Control' and contains a form. The form has two rows: 'Current Status : Off' and 'Power Control : ---- Select ----'. Below the form is a 'Submit' button.

Power Control	
Current Status :	Off
Power Control :	---- Select ----
<input type="button" value="Submit"/>	

**Figure 54 – User Management Remote Power Control**

- In the Power Control frame, select Power Off (On) from the drop down menu, then click Submit to turn off the remote server.
- OR
- Select Reset, then click Submit to reset the remote server.

## Maintenance

The Maintenance web page enables you to update the firmware, BIOS and reset the firmware.

### Firmware Update

Use the Firmware Update feature to upgrade to the latest firmware version. See *Using Firmware Management* on page 118 for more information on updating firmware.

Click the **Firmware Update** tab to view the following web page.



Figure 55 – Maintenance Firmware Update

### BIOS Update

Use the BIOS Update feature to upgrade to the latest BIOS version.

Click the **BIOS Update** tab to view the following web page.

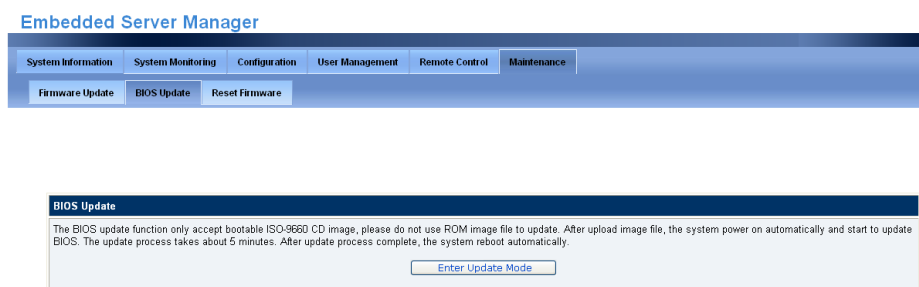
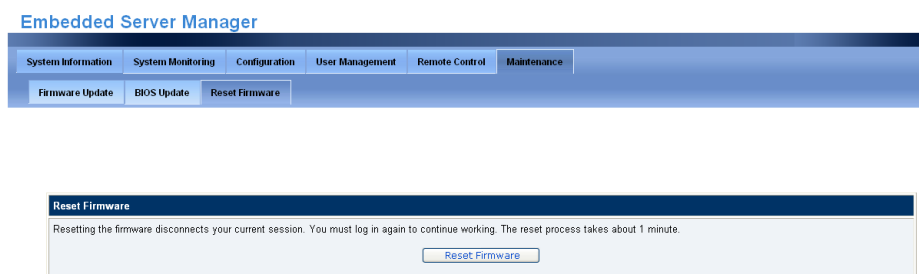


Figure 56 – Maintenance BIOS Update

### Reset Firmware

Use the Reset firmware web page to reset the firmware to the factory default configuration.

1. Click the **Reset Firmware** tab to view the following web page.



**Figure 57 – Maintenance Reset Firmware**

2. Click **Reset Firmware** to restore the default values.

## Using ESMS Advance Console Mode

This mode provides access to all ESMS functions and is designed for administrator systems tasks and monitoring for multiple servers.

ESMS Advance Console supports the following functions:

- Server Summary
- Server Management
- Server Monitor
- Web Console
- Remote KVM (Graphic console redirection with KVM over IP)
- Virtual Storage (Virtual media redirection)
- Firmware Management
- Power Control Management

Choosing Advance Console mode begins the Java web start mechanism that initiates the download of the jnlp launch file and java library and launches the Java Remote Supervisor Management (RSM) utility.



**Note:**

Before choosing Advance Console mode, ensure that the Java runtime environment (JRE6 or later) is correctly installed.



**Figure 58 – Advanced Console Login**

## Java RSM

The Java RSM combines maximum functionality with minimal screen usage, providing versatility without the need for additional windows. All supported functions are integrated into one, easy to manage window that can be applied to multiple BMC hosts simultaneously.

The main window is split up into three panels—BMC Host List, Function Selection, and Management.

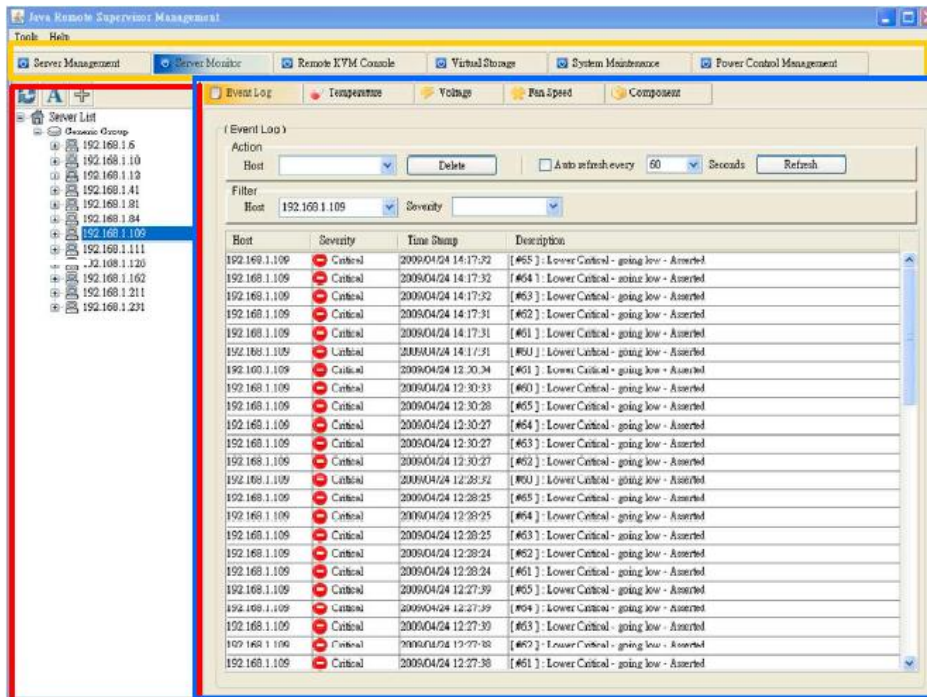




Figure 59 – Java RSM Panel Description

Item	Description
BMC Host List Panel (Red)	Displays tree structure that will display information for all discovered BMC hosts.
Function Selection Panel (Yellow)	Lists all supported functions. Users can select functions by using the TAB buttons.
Management Panel (Blue)	Management panel for all related functions.
Refresh 	Refresh button for current server list tree. Click to scan all BMC hosts located in the LAN and obtain the latest BMC information.
Search 	Utility to provide search functionality for the BMC host. Advanced options are available for searching large server lists.

### Automatic Server Discovery

The Java RSM discovery function automatically detects all BMC hosts residing on the local or remote area networks by sending multicast packets to all BMC hosts during startup. When the DISD residing in the BMC host firmware receives the discovery multicast packet, it responds by sending a UDP packet with BMC information to the Java RSM.



**Note:**

The local and remote routers must be configured to allow the transmission of multicast protocols to enable the discovery function to auto-detect BMC hosts.

Receipt of the UDP packet information adds the BMC host to the BMC Host List.

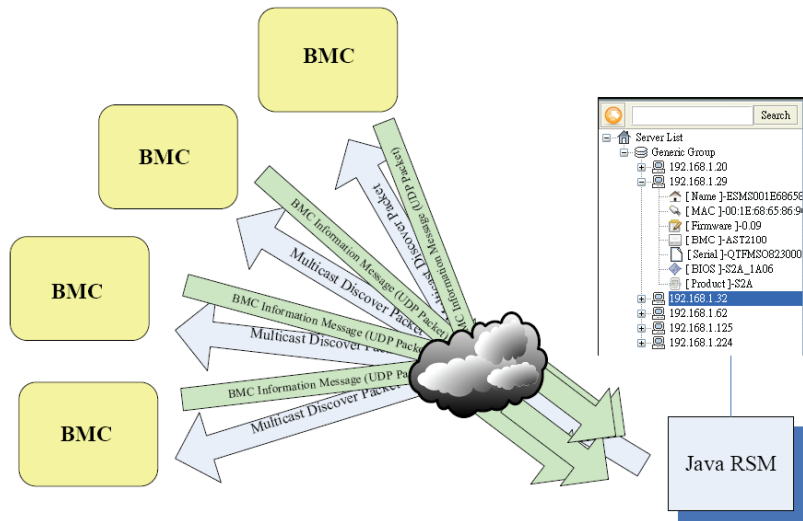


Figure 60 – Auto Server Discovery Diagram

## Authentication and Privilege

Before using Java RSM, the user must finish the authentication process to Java RSM functions acquire privileges. Enter a valid user ID and password to access the selected host.

The following web page displays after a successful authentication to the selected BMC Host.

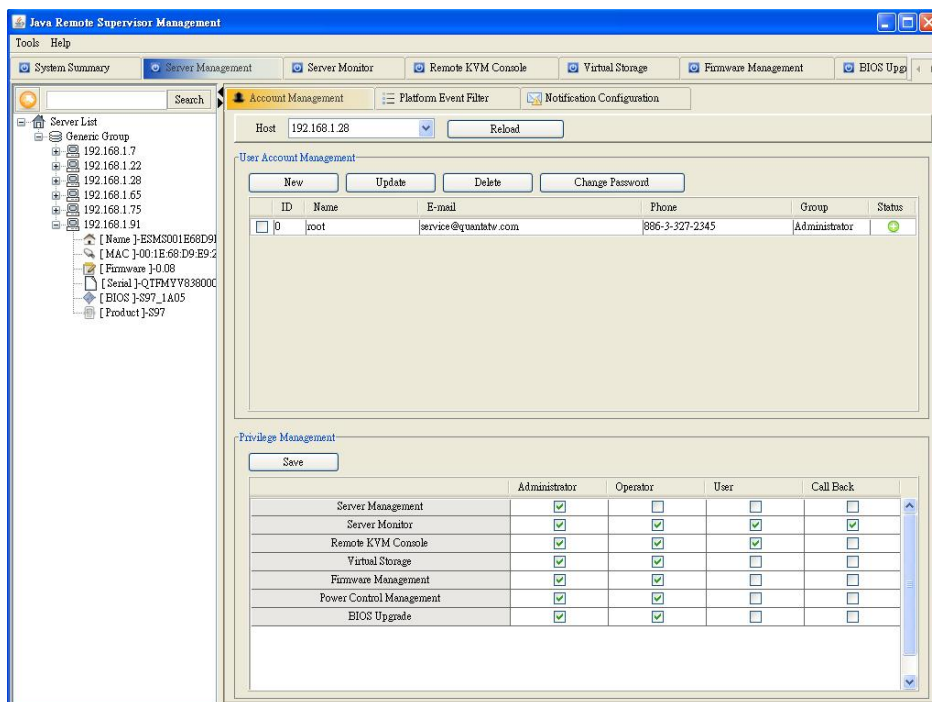


Figure 61 – Authentication and Privilege Window

Authentication failure results in displaying the following web page.

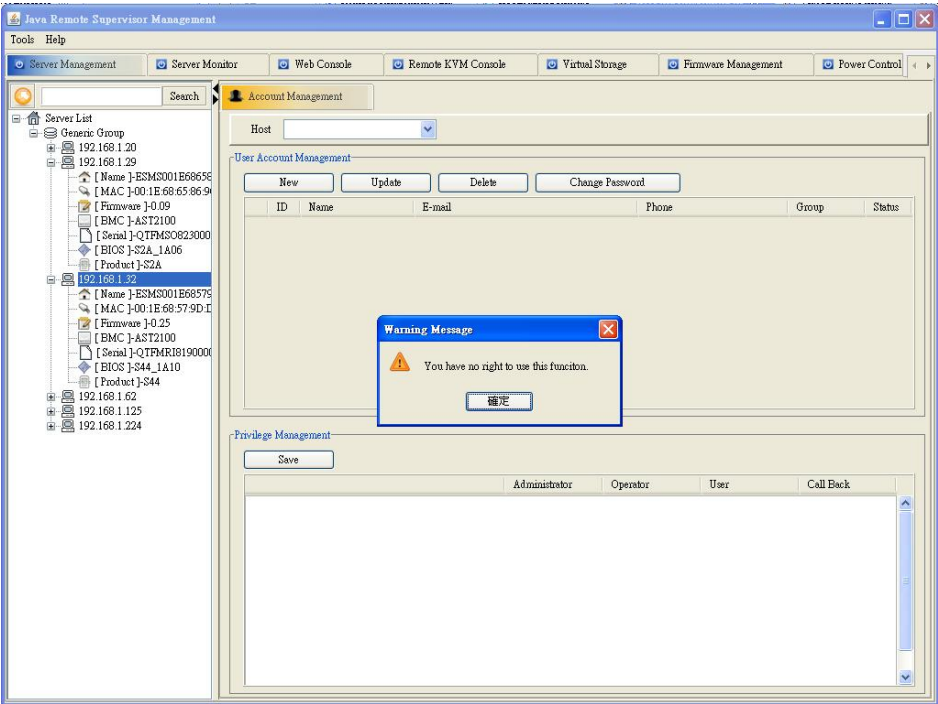


Figure 62 – Authentication Failure Result

**BMC Host List Functions**

The Java RSM supports common Host List functions to quickly configure remote BMC hosts. These functions are accessed through a pop-up menu by right-clicking the mouse button on the required host.

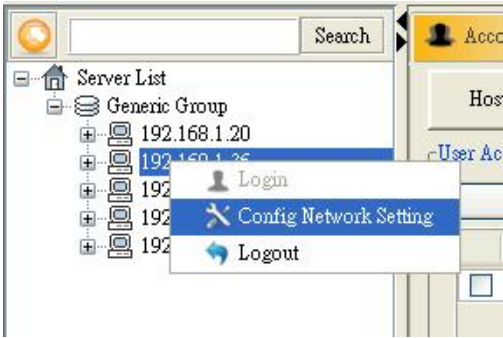
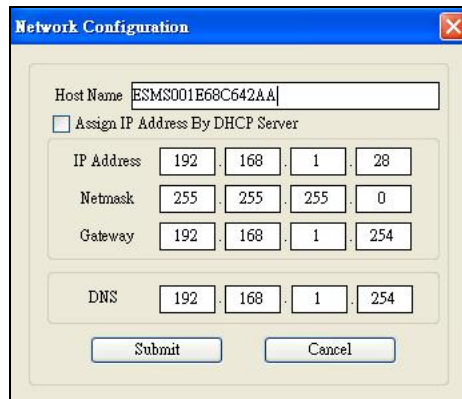


Figure 63 – BMC Host List

**Network Configuration**

The Network Configuration screen is used to make changes to the Host Name, IP Address, Netmask, Gateway and DNS information of BMC hosts detected by the Java RSM.

Right-click the desired host and select **Config Network Setting** to display the Network Configuration screen.



The image shows a 'Network Configuration' dialog box with a blue title bar and a close button. It contains the following fields and controls:

- Host Name: ESMS001E68C642AA
- ☐ Assign IP Address By DHCP Server
- IP Address: 192 . 168 . 1 . 28
- Netmask: 255 . 255 . 255 . 0
- Gateway: 192 . 168 . 1 . 254
- DNS: 192 . 168 . 1 . 254
- Submit button
- Cancel button

**Figure 64 – Network Configuration Settings**

Make any desired changes to the information displayed and click **Submit** to save the new configuration.



**Note:**  
Deselect **Assign IP Address By DHCP Server** to make changes to IP, Netmask, and Gateway information.

## Using Server Summary

System summary briefs information of remote server host. Item descriptions are summarized in the following table.

Host Address	MAC Address	Host Name	Firmware	BIOS	Serial Number	Product	SEL Count	Power St...	PEF State	Fault LED
00:1E:68:C6:42:AA	192.168.1.28	ESMS001E68C642AA	0.21	S2D_2A05	QTFN3F83700006	S2D	84	●	●	●
00:1E:68:C6:43:07	192.168.1.69	ESMS001E68C64307	0.21	S2D_2A05	QTFM3F83600026	S2D	63	●	●	●
00:1E:68:C6:4D:DD	192.168.1.221	ESMS001E68C64DD	0.21	S2A_2A04	QTFM3C083700003	S2AQR1-2A0Q8...	185	●	●	●
00:1E:68:C6:4D:DA	192.168.1.83	ESMS001E68C64DDA	0.20	S2A_2A03	QTFM3C083700002	S2AQR1-2A0Q8...	296	●	●	●
00:1E:68:C6:42:A7	192.168.1.38	ESMS001E68C642A7	0.21	S2D_2A03	QTFM3F83600036	S2D	512	●	●	●
00:1E:68:9A:AE:CF	192.168.1.7	ESMS001E689AAECF	3.34	S44_3A03	QTFNR182900020	S44QR1-4600Q...	8	●	●	●
00:1E:68:C6:4D:4E	192.168.1.74	ESMS001E68C64D4E	0.05				18	●	●	●
00:1E:68:D9:E9:20	192.168.1.91	ESMS001E68D9E920	0.04	S97_1A02	QTFMYT83800009	S97	4	●	●	●
00:32:54:12:66:55	192.168.1.31	ESMS003254126655	0.02					●	●	●
00:16:36:12:34:56	192.168.1.14	ESMS001636123456	0.25	S44_1A07	shcd134ym34129	S44	7	●	●	●

Figure 65 – Using Server Summary

No.	Item	Description
1	Host Address	Indicates the BMC host IP Address
2	MAC Address	Indicates the BMC host Ethernet card MAC address
3	Host Name	Indicates the BMC host name
4	Firmware	Indicates the current firmware version of BMC host
5	BIOS	Indicates the current BIOS version of remote server host
6	Serial Number	Indicates the serial number of server board
7	Product	Indicates the product id of server board
8	SEL Count	Indicates the current count of system event log
9	Power State	Indicates current DC power state of remote server host
10	PEF State	Indicates if the PEF (Platform Event Filter) function is enable/disable
11	Fault LED	Indicates if the Fault LED is turning on/off



## Using Server Management

The Server Management tab provides access to the Account Management, Platform Event Filter and Notification Configuration sub-functions.

### Account Management

The Account Management sub-function is designed to add, modify, and delete user accounts and their associated application privileges.

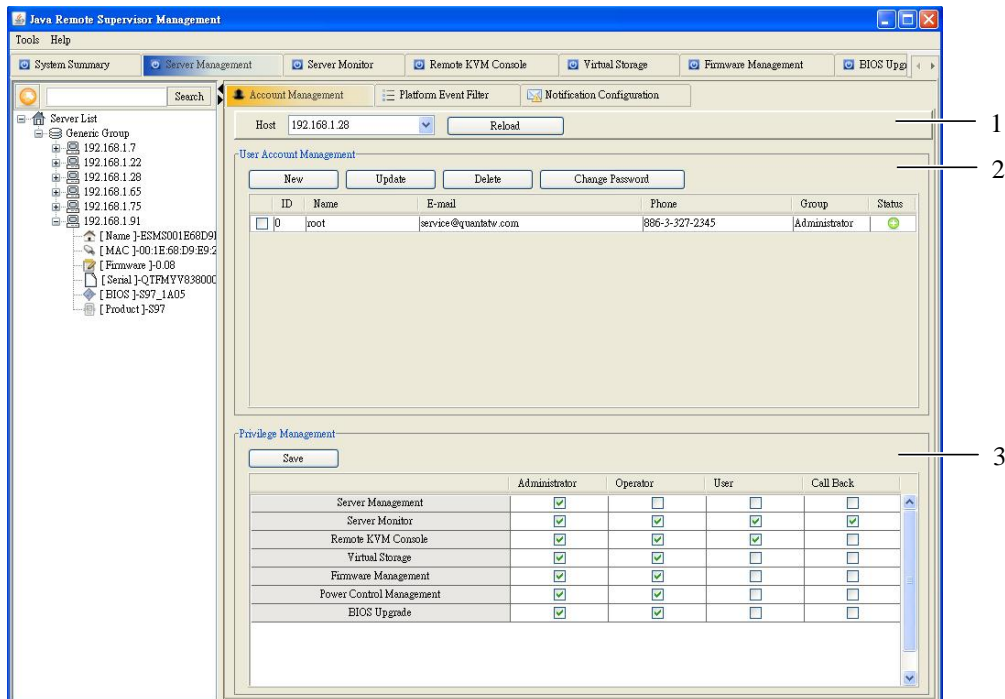


Figure 66 – User Account Management

No.	Item	Description
1	Host Selection	Select the desired host from the drag down list.
2	User Account Management	Add, Modify, and delete users or change user passwords.
3	Privilege Management	Select the desired application privileges associated with the selected group.

### Managing User Accounts

The User Account Management panel is used to add, update, and delete user accounts and change their associated passwords using the four management buttons provided.

- **New**—click **New** to display the new user screen. Enter the required information including the group to which the new user belongs and the Status.

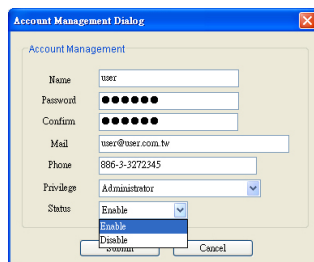
A screenshot of the 'Account Management Dialog' window. It contains fields for Name (user), Password (masked with dots), Confirm (masked with dots), Mail (user@user.com.tw), Phone (886-3-3272345), Privilege (Administrator), and Status (Enable). There are 'Submit' and 'Cancel' buttons at the bottom.

Figure 67 – Managing User Accounts

Click **Submit** to add the new user.

- Update—select a user and click **Update** to display the update screen.

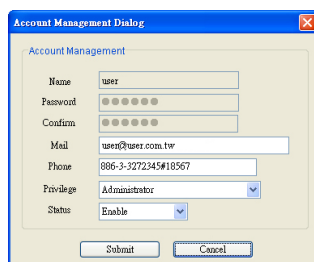
A screenshot of the 'Account Management Dialog' window, similar to Figure 67 but with the 'Submit' button highlighted. The fields contain the same data as in Figure 67.

Figure 68 – Managing User Accounts Updates

Make any desired modifications and click **Submit** to save the changes.

- Delete—select the user(s) and click **Delete** to remove the selected user(s). A confirmation message displays.

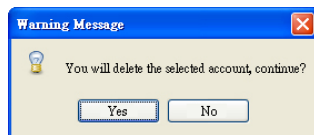
A screenshot of a 'Warning Message' dialog box. It contains a lightbulb icon and the text 'You will delete the selected account, continue?'. There are 'Yes' and 'No' buttons at the bottom.

Figure 69 – User Accounts Deleting

Click **Yes** to delete the user(s).

- Change Password— select a user and click **Change Password** to display the password change screen.

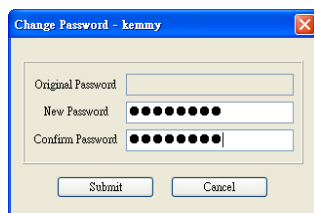
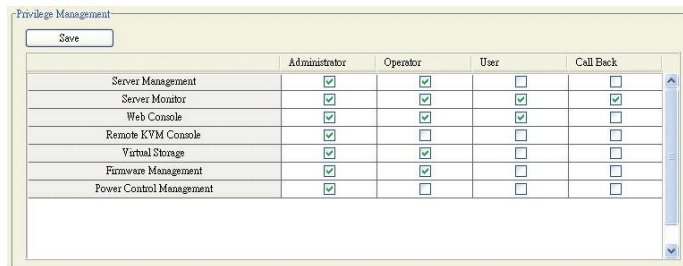
A screenshot of the 'Change Password - kemmy' dialog box. It contains fields for Original Password, New Password (masked with dots), and Confirm Password (masked with dots). There are 'Submit' and 'Cancel' buttons at the bottom.

Figure 70 – User Accounts Changing Password

Make any desired modifications and click **Submit** to save the changes.

## Managing Function Privileges

Every function of the Java RSM requires specific privilege to execute and the Privilege Management panel determines what privileges are associated with a particular user group. All users belong to one of four groups—Administrator, Operator, User, and Callback—on a sliding scale of function privilege, Administrator being the most powerful group.



**Figure 71 – Managing Function Privileges**

To change group privileges, check or deselect the desired boxes for each group and click **Save** to save changes.



**Note:**

The example shows the default privilege settings for all groups.

The Java RSM automatically checks if the current user is authorized to use a specific function and displays an error message if the user's privilege is insufficient.



**Figure 72 – Managing Function Unauthorized Privilege**

## Platform Event Filter

User can configure the Platform Event Filter (PEF) configuration of remote BMC host in using PEF.

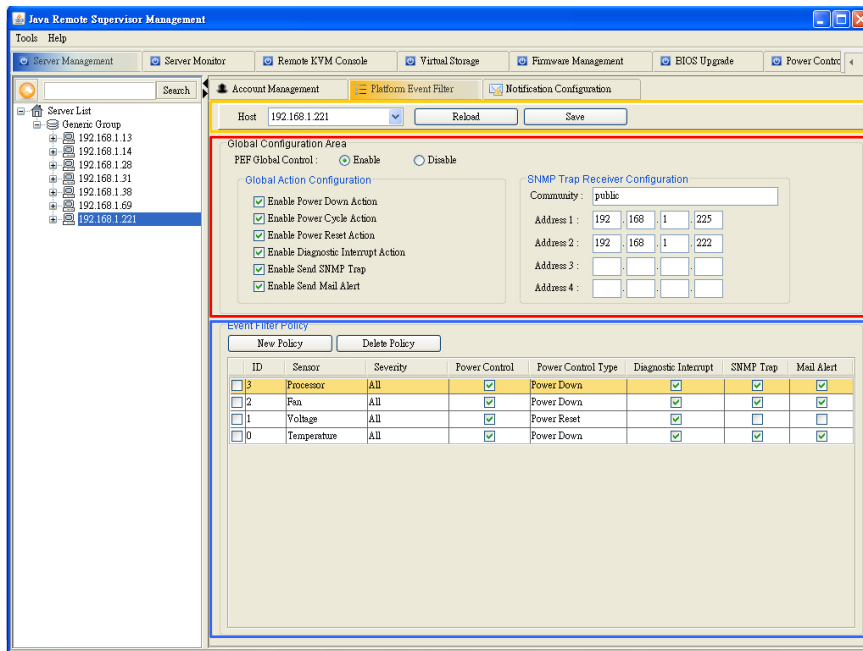


Figure 73 – Platform Event Filter

No.	Item	Description
1	PEF configuration target host filter area. (Yellow)	Utility for filter the wanted information of target host.
2	Global Configuration of Platform Event Filter (Red Block)	Show the current global configuration of target host and provide the adjust function that user can configure the configuration by selecting the radio button, checking the check box.
3	PEF Policy configuration area (Blue Block)	Display current policy of target
4	Host <input type="text" value="192.168.1.221"/>	Combo box for listing the selected hosts from the server tree list on the left side.  As doing filtering action, the combo box provide for choosing the target host.
5	<input type="button" value="Reload"/>	Button for reload the latest configuration date from remote BMC host.
6	<input type="button" value="Save"/>	Button for saving the adjusted configuration to remote BMC host
7	<input type="button" value="New Policy"/>	Button for add now PEF policy record
8	<input type="button" value="Delete Policy"/>	Button for delete the selected policy record.
9	Power State	Indicate current DC power state of remote server host
10	PEF State	Indicate if the PEF (Platform Event Filter) function is enable/disable
11	Fault LED	Indicate if the Fault LED is turning on/off



**Note:**

When multi-users are using PEF, click the **Reload** button to obtain the latest data.

Maximum 6 configurations can be recorded.

## Notification Configuration

User can configure the mail notification to allow remotely BMC host to send system event alert through mail.

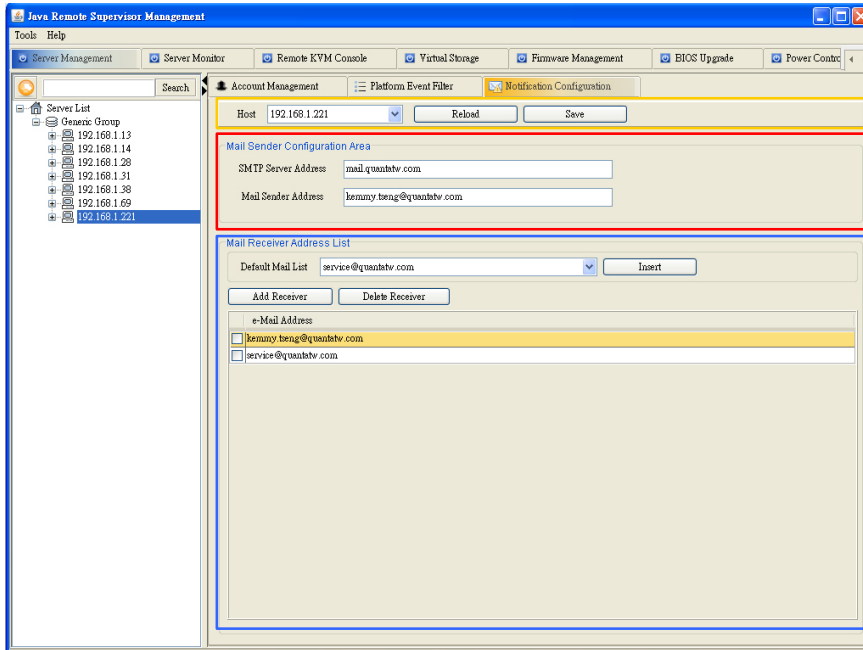
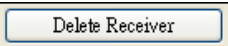


Figure 74 – Notification Configuration Screen

No.	Item	Description
1	Notification configuration target host filter area. (Yellow)	Utility to filter the desired information of target host.
2	Notification mail sender information and configuration area. (Blue)	Displays the current notification sender mail information. The text fields are editable.
3	Notification mail receiver configuration area	Displays current notification mail receiver.
4	Host <input type="text" value="192.168.1.221"/>	List the selected hosts from the server tree list from the left column. For filtering action, the combo box provides choosing the target host.
5	<input type="button" value="Reload"/>	Reload the latest configuration date from remote BMC host.
6	<input type="button" value="Save"/>	Save the configuration settings to remote BMC host .
7	<input type="button" value="Add Receiver"/>	Add new mail receiver address records.

8		Button for deleting the selected mail receiver address record.
---	---	--



**Note:**

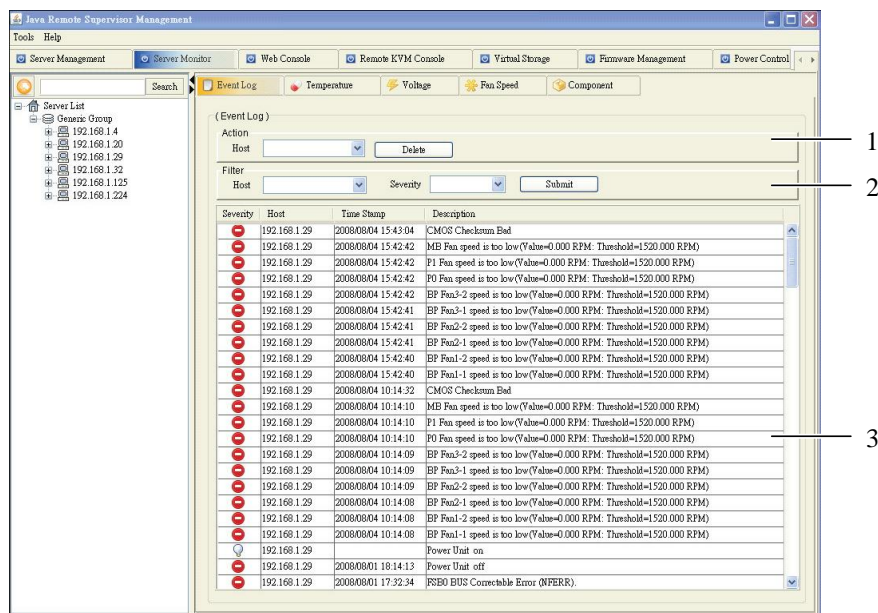
Accounts set in Account Management will be automatically in the Default Mail List. Maximum 7 accounts will be listed in Default Mail List.

## Using Server Monitor

The Server Monitor displays information about specific remote system status. All discovered hosts relay information to the Server Monitor, which is then sorted in to an Event Log, and item specific sub-functions including system temperature, system voltage, system fan speed, and system components.

### Event Log

The Event Log records system events in the form of a table for all discovered BMC hosts. Filters applied to the log reduce the content to specific events requested by the user.



**Figure 75 – Server Monitor Event Log**

No.	Item	Description
1	Action Panel	Select the host log to display from the drop down menu or delete the log for the selected host.
2	Filter Panel	Add Filters to the log output to target specific events.
3	Event Log Panel	Displays system events for the specified host in chronological order—most recent to least recent.

### Applying Event Log Filters

To Filter the Event Log, perform the following steps:

1. Select the **Host** and/or **Severity** filters from the drop down menus.
2. Click **Submit**.

The log is re-ordered by the specified filters.

System Temperature

All system environmental conditions sensed by BMC are recorded on the Temperature page directly from the sensor build integrated in the remote server.

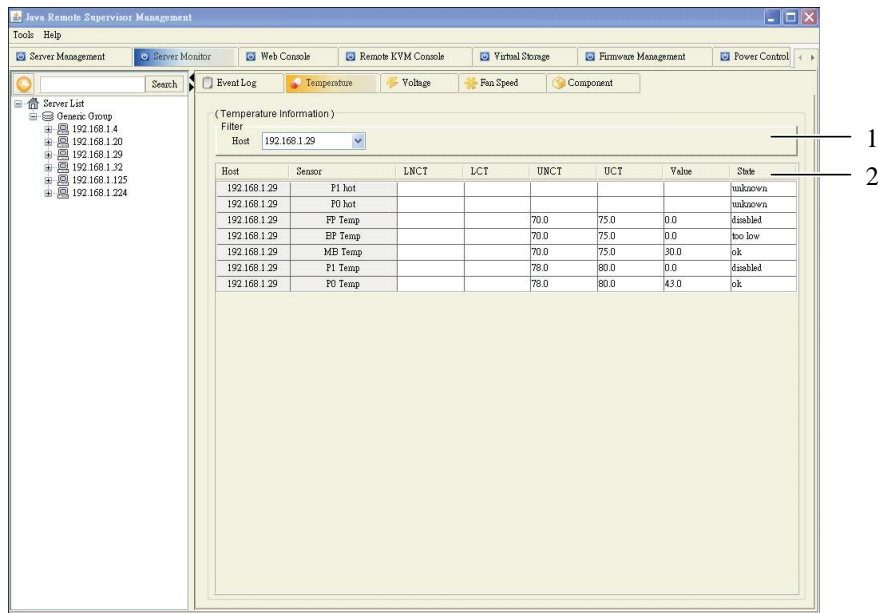


Figure 76 – Server Monitor System Temperature

No.	Item	Description
1	Filter Panel	Select the host temperature conditions to display.
2	Temperature Information Panel	Displays system temperature statistics for the specified host and sensor in the following columns: LNCT—lower non-critical threshold value LCT—lower critical threshold value UNCT—upper non-critical threshold value UCT—upper critical threshold value Value—the actual temperature value recorded by the sensor State—the sensor state (if known)



System Voltage

All system voltage conditions sensed by BMC are recorded on the Voltage page directly from the sensor build integrated in the remote server.

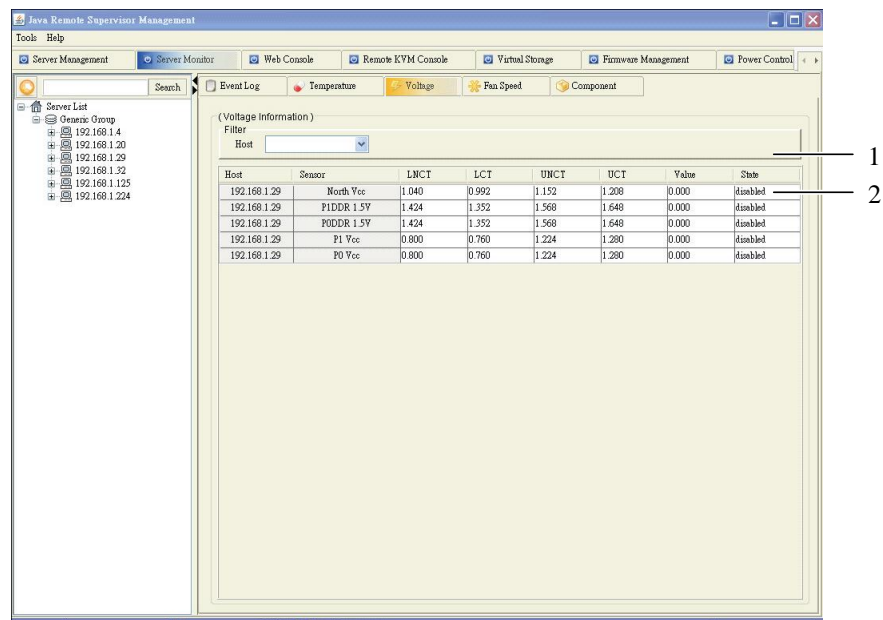


Figure 77 – Server Monitor Voltage

No.	Item	Description
1	Filter Panel	Select the host voltage conditions to display.
2	Voltage Information Panel	Displays system voltage statistics for the specified host and sensor in the following columns: LNCT—lower non-critical threshold value LCT—lower critical threshold value UNCT—upper non-critical threshold value UCT—upper critical threshold value Value—the actual voltage value recorded by the sensor State—the sensor state (if known)

System Fan Speed

All system fan speed conditions sensed by BMC are recorded on the Fan Speed page directly from the sensor build integrated in the remote server.

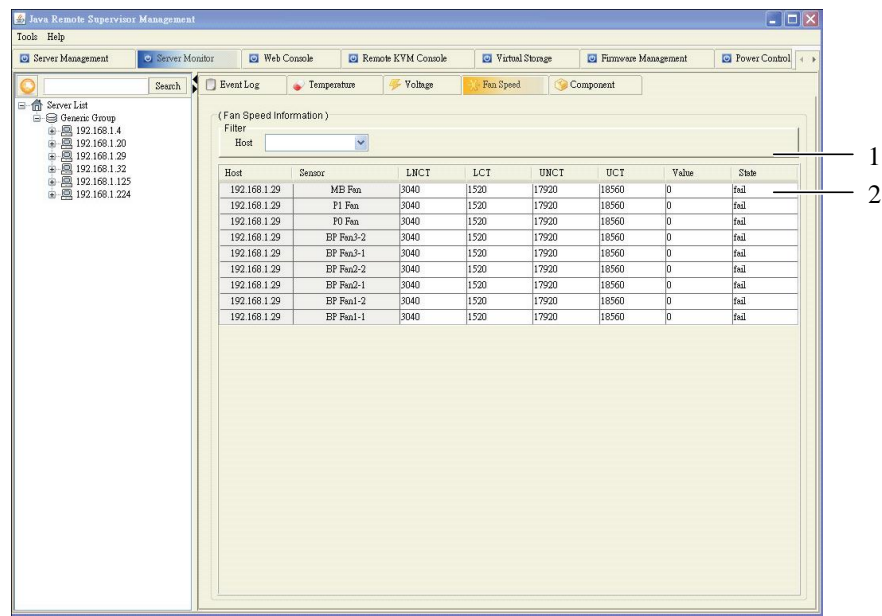


Figure 78 – Server Monitor Fan Speed

No.	Item	Description
1	Filter Panel	Select the host fan speed conditions to display.
2	Fan Speed Information Panel	Displays system fan speed statistics for the specified host and sensor in the following columns: LNCT—lower non-critical threshold value LCT—lower critical threshold value UNCT—upper non-critical threshold value UCT—upper critical threshold value Value—the actual fan speed value recorded by the sensor State—the sensor state (if known)

## System Components

All CPU and memory information of remote systems is recorded on the Component page directly from the component build integrated in the remote server.

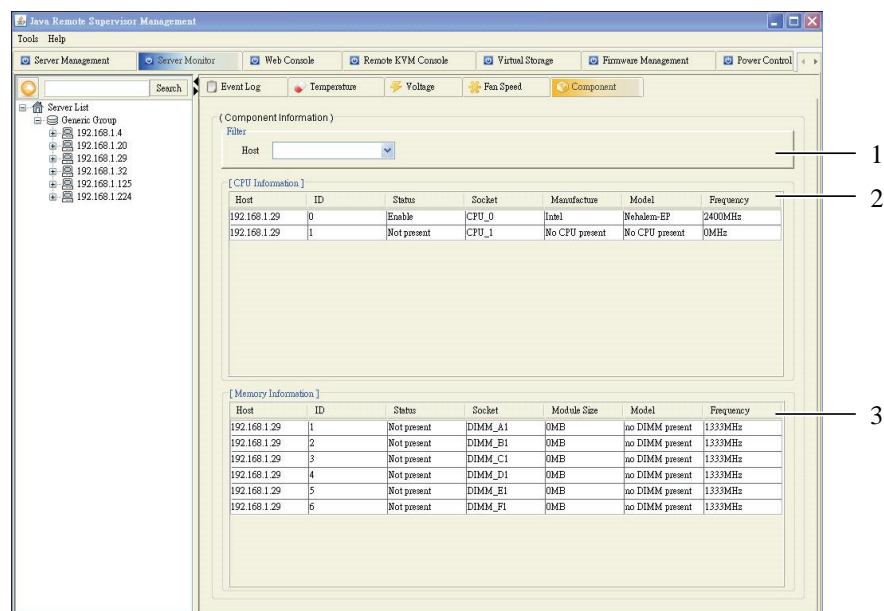
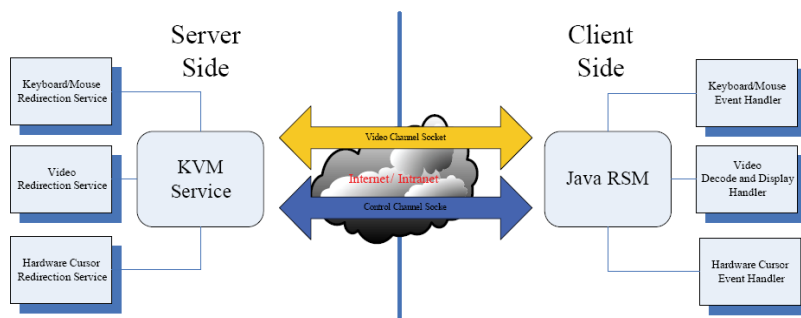


Figure 79 – Server Monitor Components

No.	Item	Description
1	Filter Panel	Select the host component information to display.
2	CPU Information	Displays system CPU information for the specified host in the following columns: ID—the system component ID number Status—the current component status Socket—the socket associated with the component Manufacture—the component manufacturer Model—the component model Frequency—the component operating frequency
3	Memory Information	Displays system Memory information for the specified host in the following columns: ID—the system component ID number Status—the current component status Socket—the socket associated with the component Module Size—the size of the component memory in megabytes Model—the component model Frequency—the component operating frequency

## Using Remote KVM Console

Remote Keyboard, Video, and Mouse (KVM) over IP redirects server video screen, keyboard, and mouse data to or from a remote console PC over a network enabling administrators to operate and monitor servers remotely.



**Figure 80 – Remote KVM Console Overview**

Two TCP socket connections are available between the KVM service (server) and Java RSM (client):

**Video Channel**—uses TCP socket port 8900 to transfer the compressed video data to the Java RSM.

**Control Channel**—uses TCP socket port 8890 to exchange control related data, for example keyboard and mouse USB HID emulation data, between KVMD and the Java RSM.

### Remote Screen Redirection

ESMS captures video output, compresses, and sends it to a remote console PC with encryption. The Java RSM application on the console PC receives and displays the server's video screen. ESMS can acquire video source either from PCI bus as VGA mode or from external source as Video mode. Please refer to hardware specification for more detail information about mode switching.

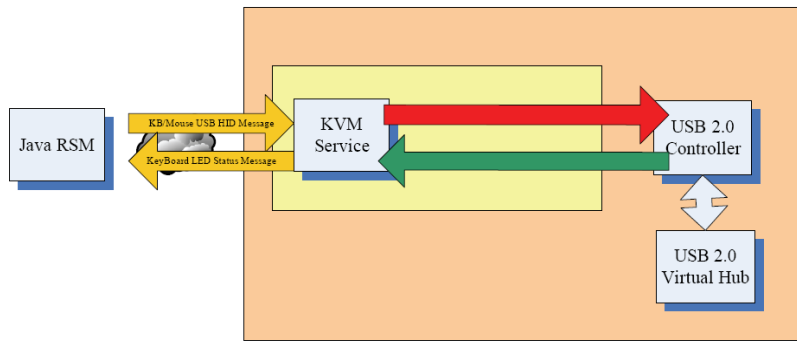
The supported screen resolutions are as follows:

Resolution	8-BPP	15/16-BPP	24-BPP
640x480	60/75/85 Hz	60/75/85 Hz	60/75/85 Hz
800x600	60/75/85 Hz	60/75/85 Hz	60/75/85 Hz
1024x768	60/75/85 Hz	60/75/85 Hz	60/75/85 Hz
1280x1024	60/75 Hz	60/75 Hz	60/75 Hz

## Keyboard and Mouse redirection

Once the Remote KVM function is launched, Java RSM emulates USB 2.0 keyboard and mouse devices. As a result, the managed server's BIOS or OS will detect the USB keyboard and mouse attached, and loads their drivers to service them.

Keyboard and mouse redirection architecture is described in the following illustration.



**Figure 81 – Remote KVM Keyboard and Mouse Redirection**

The Java RSM captures keyboard input and mouse movement/click events and sends them to BMC. The KVM service receives and packs them in USB HID format then transmits the packet to the managed server through the USB interface and protocol.

## Mouse Synchronization at Console Side

When the Remote KVM application is launched on the console PC, the mouse position of the remote server and the console are automatically synchronized to the top-left of the screen. However, once the managed server mouse is moved locally, the console PC mouse position is different from the redirected managed server mouse.

In order to re-synchronize the mouse, click the **Mouse Synchronization** button on the toolbar.



**Figure 82 – Remote KVM Mouse Synchronization**



### **Note:**

If the mouse is asynchronous after clicking mouse synchronization, ensure that mouse acceleration is turned off.

To turn off the mouse acceleration function:

- In Solaris or Linux at the command prompt:  
**xset m 1 1**
- In Windows XP and Windows 2003:  
Click **Control Panel** → **Mouse** → **Pointer Options** and deselect **Enhance** pointer precision.
- In Windows 2000:  
Click **Control Panel** → **Mouse** → **Motion** → **Acceleration** → **None**.

## Mouse Control Mode Selection

Two types of USB mouse cursor axis movement are supported: Relative mode and Absolute mode.

**Relative mode**—a common USB mouse type, mouse axis movement is measured according to x and y coordinates and then compared to the last axis position to calculate the current mouse position. If the resolution of the physical mouse device is low, causing the mouse cursor to move slowly, the operating system provides the mouse

## — Using the ESMS

acceleration function to exaggerate the mouse movement vectors and increase the cursor move speed. When using Relative mode, ensure that mouse acceleration is turned off.

**Absolute mode**—only supported by Windows and Mac OSX operation systems. The mouse cursor axis position references the absolute axis position of physical mouse device. This mode is often used for touch screen devices. When using absolute mode, the mouse cursor is always synchronized and mouse acceleration should not be disabled.



### Note:

Absolute Mode is only supported when the remote server is using Windows series or Mac OSX operating system.

To switch control mode, click **Console Option** and select **Mouse Control Mode**.

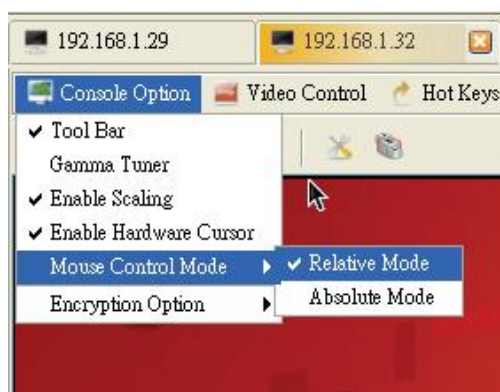


Figure 83 – Remote KVM Mouse Control Mode

## Show/Hide Console Side Mouse

You can hide or show the console side (local) mouse by clicking the **Local Cursor** button on the toolbar.



Figure 84 – Remote KVM Mouse Console Side

When the local cursor is enabled, two mouse pointers are visible on screen.

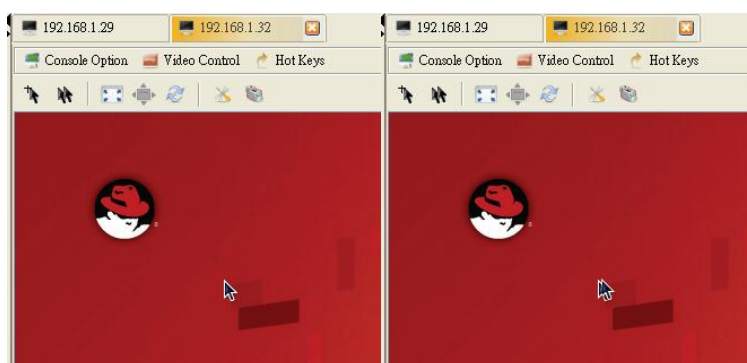
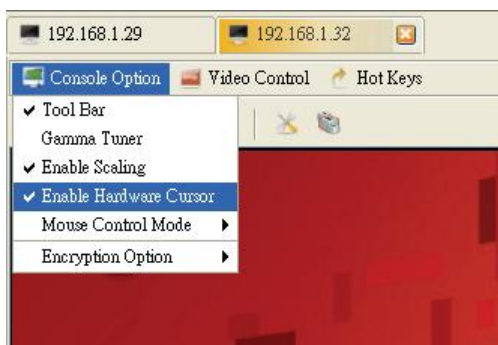


Figure 85 – Remote KVM Mouse Pointer Representation

## **Hardware Cursor Mode**

Java RSM provides the means to separate mouse data from video data and sends the cursor position directly to the console end after positional updates or icon changes. In this mode, video image transmits become fewer and mouse movement becomes smoother.

To enable the Hardware Cursor, click **Console Option** and select **Enable Hardware Cursor**.

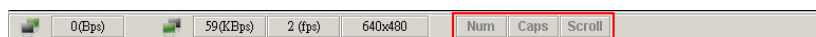


**Figure 86 – Remote KVM Hardware Cursor**

## **Keyboard LED and Status Synchronization**

The remote keyboard LED status indicators on the GUI are designed to provide a view of the keyboard LED status on the managed server side. When the remote KVM function is activated on the console PC, the LED statuses between the client and managed server side might be different.

The indicator switches change the keyboard status on the managed server side. Click the desired indicator to synchronize the keyboard status on the managed server and client.



**Figure 87 – Remote KVM Keyboard Synchronization**

## Hot-Key Simulation

Since Windows or other application programs have priority in using hot-keys before the remote server, (for example Ctrl-Alt-Del), the Java RSM ignores these keys and does not send them. However, you can assign hotkeys in the Java RSM application and these hotkeys are available on the menu-bar where the user can select hot keys to send to ESMS and the managed server directly, instead of pressing keys.

Click on the following icon on the toolbar to open the **Setup Hotkeys** screen.



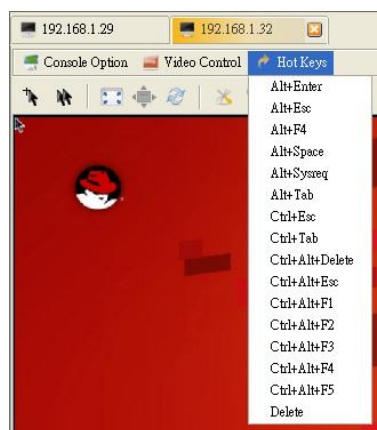
**Figure 88 – Remote KVM Hot Key Simulation**

The following screen displays the hot-key menu.



**Figure 89 – Remote KVM Hot Key Menu**

Configure up to 16 hot-keys and click Submit to save the changes. These hot-keys are accessible through the **Hot Keys** button on the KVM desktop.



**Figure 90 – Remote Hot Key List**



## Virtual Keyboard Utility

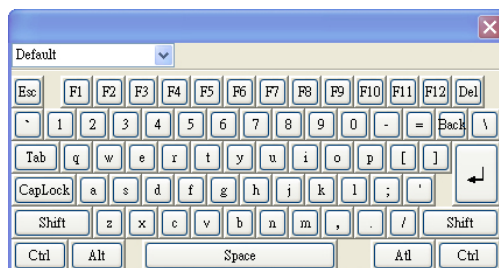
The Virtual Keyboard utility improves the limited support of different language keyboards in the java environment. Every key on virtual keyboard dialog is mapped to USB HID Code. Clicking a virtual key sends a simulated USB HID message in place of a non-supported language key.

Click on the following icon to open the Virtual Keyboard utility.



**Figure 91 – Remote KVM Virtual Keyboard Icon**

The Virtual Keyboard appears as shown. Click the desired key on the Virtual Keyboard to send the associated USB HID message.



**Figure 92 – Remote KVM Virtual Keyboard**

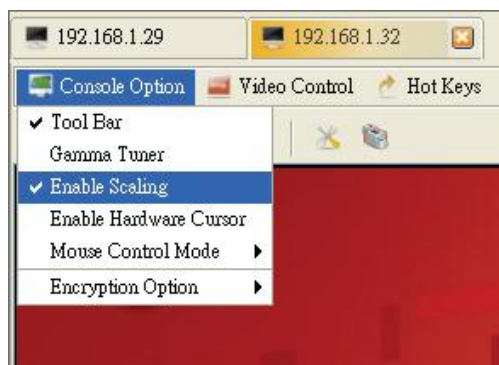
Supported languages are shown in the table below. The list is expandable using the appropriate plug in for the formatted java property file.

Language	Language Code	Country Code
English (default)	En	US
Japanese	Jp	JP
German	De	DE

## Switching Video Screen Display Mode

If the remote screen resolution is larger then the client video display panel, the scroll bar is used to view the off screen portions of the remote display. Java RSM provides a video screen scaling function to resize the remote video screen to fit the current frame size of video display panel.

To activate scaling, click **Console Option** and select **Enable Scaling**.



**Figure 93 – Remote KVM Enable Scaling Display**

— Using the ESMS

The screen size is automatically adjusted to fit the local screen size.

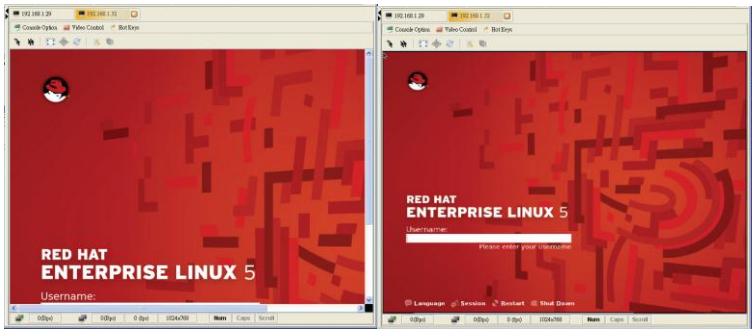


Figure 94 – Remote KVM Adjust to Local Screen Size

**Video Quality Adjustment**

In order to meet different user’s network bandwidth and video quality requirements, the video quality adjustment function allows for video quality scaling.

To adjust video quality, click **Video Control** and select **Video Quality**.



Figure 95 – Remote KVM Video Quality Adjust

The four video quality options are defined and described in the table below.

Option	Quality	Required System Resource	Bandwidth
Low	The video appears blurred due to loss of quality	Lowest system resource usage ↓	Lowest network bandwidth usage ↓
Medium	Less blurring and video noise		
High	Very little blurring or video noise		
Extreme	Clear video screen present	Highest system resource usage	Highest network bandwidth usage

### Video Contrast Adjustment

The Video Contrast Adjustment function allows for adjustment of contrast parameters for the incoming video.

To adjust the contrast, click **Console Option** and select **Gamma Tuner**. Use the gamma value slide to select the desired gamma value.

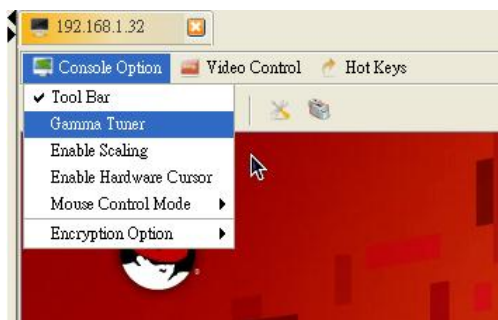


Figure 96 – Remote KVM Video Contrast Adjust

### Encryption Mode

Encryption includes the following modes.

- Keyboard and mouse encryption: Uses AES method for encryption
- Video Only encryption: Uses RC4 method for encryption.

The client side can only view encryption mode; however, users can access the Web Console to change the encryption mode and launch again.



Figure 97 – Remote KVM Encryption Mode Display

Using Virtual Storage

The Virtual storage function provides storage redirection to a host platform from a remote site over a network as shown in the illustration below. The Java RSM creates a socket connection with the VStorage service and sends a socket packet of the physical storage device or ISO image file information (device type, is read only and encryption type) at client side to VStorage. When the storage information is received from the client, VStorage emulates an USB mass storage device for the USB Host. The operation system recognizes the virtual USB mass storage and mounts it as a virtual storage device.

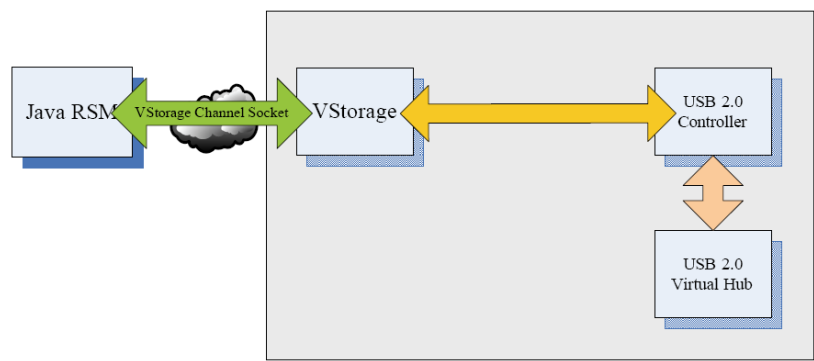


Figure 98 – Virtual Storage Overview

Currently, the virtual storage function provided by Java RMS supports one physical device shared by multiple remote hosts, with each remote host able to mount up to six virtual storage devices.

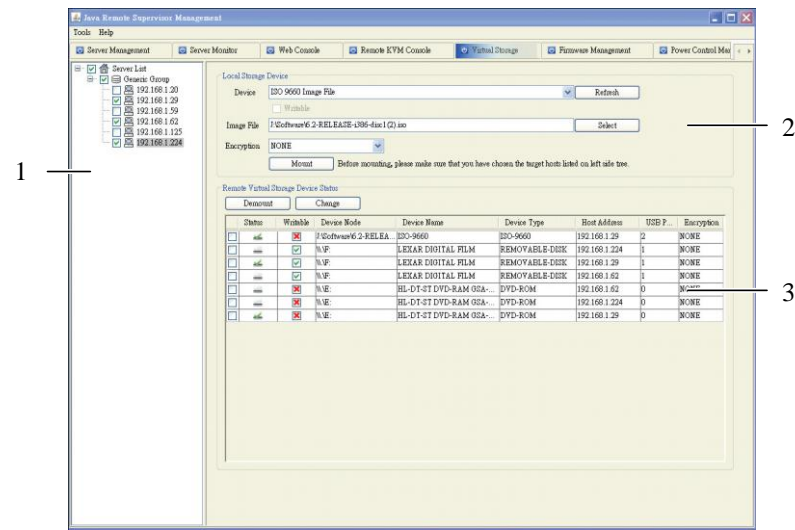


Figure 99 – Virtual Storage Screen

No.	Item	Description
1	Host Selection Panel	Select the host(s) able to access the virtual device
2	Device Selection Panel	Specify the virtual device characteristics
3	Status/Change Panel	Dismount or change a virtual device image files, or view device status information

## Mounting Virtual Devices

Available physical devices are auto-detected by the Java RSM and added to a drop down list for selection and mounting. The following table describes the currently supported physical devices and the associated read/write status.

Physical Device	Writable
Flash Disk	Yes
CD-ROM	Yes
DVD-ROM	Yes
ISO-9660 Image	No
Floppy Image	No



### Note:

USB interface of Flash Disk, CD-ROM, DVD-ROM, ISO-9660 Image and Floppy Image (non-compressed file type) can support mounting virtual devices.

Floppy Image under .ima and .img file types can support mounting virtual devices.

Each Server can mount up to 6 devices, but user has to follow the speed of client device to achieve the best performance.

To mount a virtual device, perform the following steps:

1. Ensure that the physical device is connected and working properly.
2. Select the remote host(s) able to access the virtual device by checking the appropriate boxes in the Host Selection Panel.
3. Select the desired physical device from the drop down menu.

**Figure 100 – Selecting Desired Devices**

4. Enter an Image File if necessary, and select the encryption mode.



### Note:

Ensure that the target hosts are selected in the Host Selection panel before mounting a device.

5. Click **Mount** to add the virtual device to the Remote Virtual Storage Device Status panel.

## Demounting Virtual Devices

To demount a virtual device, select the device in the Remote Virtual Storage Device Status panel as shown and click **Demount**.

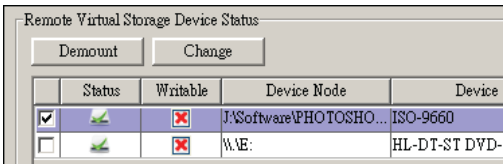


Figure 101 – Demounting Virtual Devices

The Java RSM handles the demount automatically, and the virtual device is removed from the status panel.

**Virtual Storage Status**

All mounted virtual storage devices are listed in the Remote Virtual Storage Device Status panel in the Virtual Storage tab.

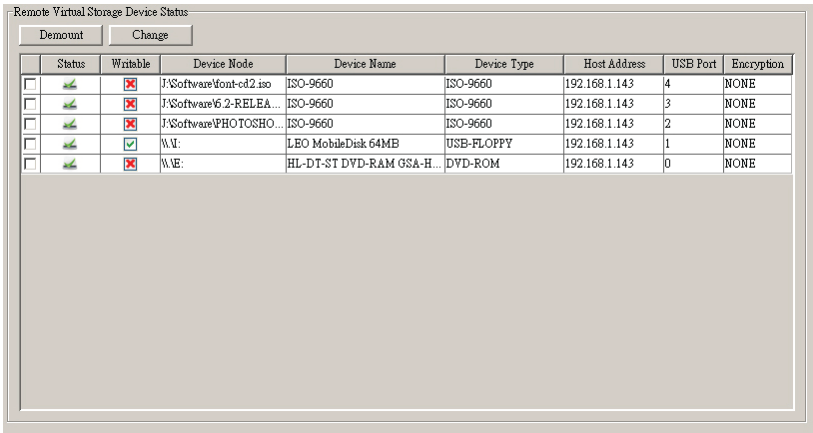







Figure 102 – Virtual Storage Status Screen

The following table describes the columns in the status panel.

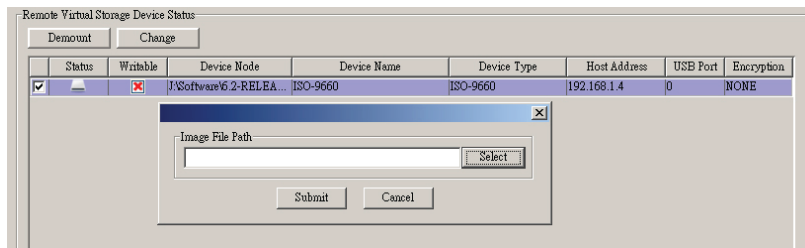
Item	Description
Status	Indicates the status of all mounted virtual storage devices
	<b>Icon      Status</b>
	 The device is ready to use
	 The device is reading
	 The device is writing
	 There is no media in the device (CD-ROM/DVD-ROM)
Writable	 An error occurred
	Displays writable or read only status
Device Node	Displays the device node represented in the OS HW node list or the file path of the associated image file for the mounted virtual storage
Device Name	Displays the name of the mounted virtual device
Device type	Displays the physical device type
Host Address	Displays the remote IP address of the host
USB Port	Displays the USB port the physical device occupies
Encryption	Displays the encryption method adopted by the virtual device

### **Changing Device Image Files**

The Java RSM supports changing device image files without the need to demount and remount the associated device.

To change the image file of a virtual device, perform the following steps:

1. Select the device in the Remote Virtual Storage Device Status panel as shown and click **Change**.



**Figure 103 – Virtual Storage Device Status**

2. Enter the Image File path or click **Select** to browse for image files.
3. Click **Submit**. The Device Node entry in the status panel is updated with the new image file.

Using Firmware Management

The Java RSM Firmware Management function provides a simple interface for upgrading remote BMC firmware individually or simultaneously. Firmware Management also provides a reset function, returning the selected host to the default firmware.

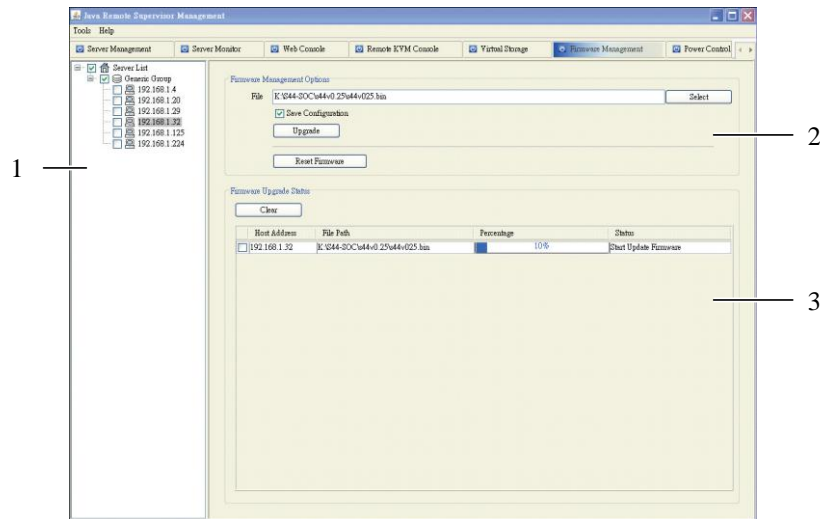


Figure 104 – Firmware Management Screen

No.	Item	Description
1	Host Selection Panel	Select the host(s) to upgrade
2	Firmware Management Panel	Manage upgrade files and reset BMC hosts to default firmware
3	Upgrade Status Panel	Displays upgrade status and cancels upgrades in progress

To upgrade BMC firmware on individual or multiple remote servers, perform the following steps:

1. Select the target remote BMC server(s) to receive the upgrade in the Host Selection panel.
2. Enter the firmware file path or click **Select** to browse for firmware files.

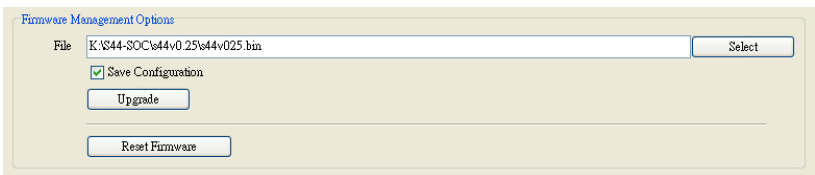


Figure 105 – Firmware Management Options



**WARNING!**  
Check **Save Configuration** before proceeding to retain any function customization. All settings are returned to factory default during firmware upgrades.

3. Click **Upgrade** to start the upload of the selected firmware file.
4. Check the progress of firmware updates in the **Update Status** panel.



## Using Power Control Management

The Java RSM Power Control Management function controls the power state of remote servers. The utility enables the administrator to power on/off, or reset remote server power over the network. The addition of a scheduling function enables the administrator to manage server power status at specified future dates and times.

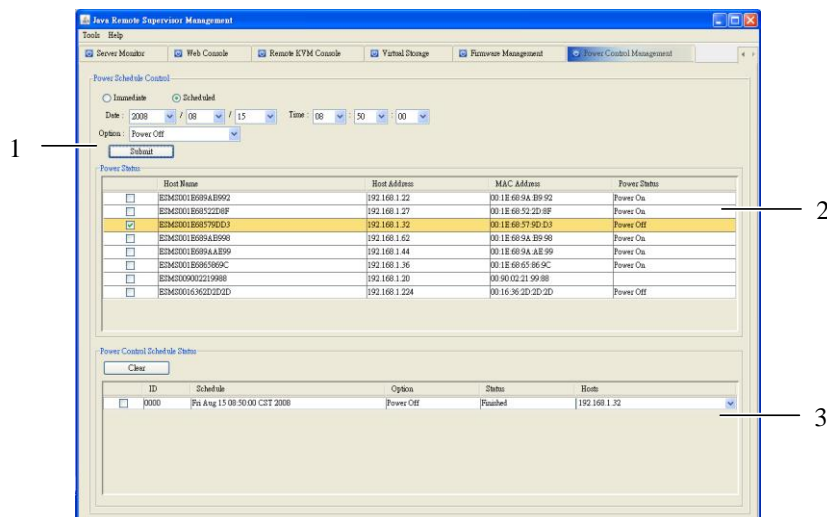


Figure 106 – Power Control Management

No.	Item	Description
1	Power Schedule Control Panel	Manage power status and scheduling
2	Power Status Panel	Displays all detected BMC server power status
3	Power Control Schedule Status Panel	Displays the power control schedule

### Changing Remote Server Power States

To change individual or multiple server power states, perform the following steps:

1. Select **Immediate** and choose the desired power status from the drop down menu.
2. Select the servers to receive the state change signal in the Power Status panel.

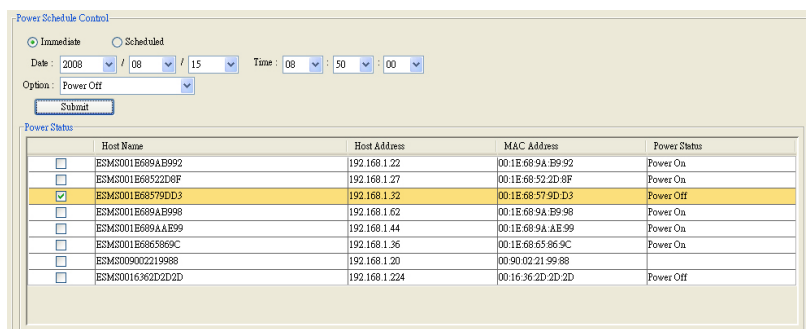


Figure 107 – Changing Remote Power States

3. Click **Submit**. The requested power state change takes effect immediately.

Scheduling Power State Changes

To schedule individual or multiple server power state changes, perform the following steps:

- 1. Select **Scheduled** and enter the date and time for the power state change to occur.
- 2. Select the desired power status from the drop down menu.
- 3. Select the servers to receive the state change signal in the Power Status panel.

Power Schedule Control

☐ Immediate ☒ Scheduled

Date : 2008 / 08 / 15 Time : 08 : 50 : 00

Option : Power Off

Submit

Power Status

	Host Name	Host Address	MAC Address	Power Status
<input type="checkbox"/>	ESMS001E689AB992	192.168.1.22	00:1E:68:9A:E9:92	Power On
<input type="checkbox"/>	ESMS001E68522D8F	192.168.1.27	00:1E:68:52:2D:8F	Power On
<input checked="" type="checkbox"/>	ESMS001E68579DD3	192.168.1.32	00:1E:68:57:9D:D3	Power Off
<input type="checkbox"/>	ESMS001E689AB998	192.168.1.62	00:1E:68:9A:E9:98	Power On
<input type="checkbox"/>	ESMS001E689AAE99	192.168.1.44	00:1E:68:9A:AE:99	Power On
<input type="checkbox"/>	ESMS001E6865869C	192.168.1.36	00:1E:68:65:86:9C	Power On
<input type="checkbox"/>	ESMS000900219988	192.168.1.20	00:90:02:21:99:88	Power On
<input type="checkbox"/>	ESMS0016362D2D2D	192.168.1.224	00:16:36:2D:2D:2D	Power Off

Figure 108 – Scheduling Power State Changes

- 4. Click **Submit**. The requested power state changes are added to the Power Control Schedule Status panel.

Power Control Schedule Status

Clear

	ID	Schedule	Option	Status	Hosts
<input type="checkbox"/>	0001	Tue Aug 05 13:18:00 CST 2008	Power On	Finished	192.168.1.4

Figure 109 – Submitting Power State Changes

When the date and time specified arrives, the requested power state change is sent to the selected remote server(s).



**Note:**  
Scheduled changes that have expired are retained by the schedule status panel until the administrator clicks **Clear**.

## Troubleshooting Sequence

### Server Boot Issues

System does not Boot after initial installation

Power Connector Not Plugged In

Processor Issues

Memory Issues

Monitor Issues

Power Supply and Chassis Issues

Cable Issues

Electrical Short or Overload

Defective Components

System does not boot after configuration changes

Hardware Changes

Software Changes

BIOS Changes

Viewing System Event Logs for investigation

Installation Problems Troubleshooting External Connections

#### **System does not Boot after initial installation**

##### **Power Connector Not Plugged In**

If the power supply cable is not plugged into the Mainboard CPU power connector (see ETegro Hyperion RS130 G3 Mainboard Components on page 12 for the location), the system cannot boot up, even though chassis front panel LEDs and the fan may be operational. Verify that the power connections are good.

##### **Processor Issues**

Boot failure situations are also caused by the following:

Incompatible processor—ensure the selected processor model is correct for your server board. Some processors require specific server board versions and BIOS revisions (see Specifications on page 134). If the processor is compatible, try removing and reinstalling the processor to ensure it is installed correctly.

Processor overheat—the system does not boot or shuts down shortly after booting.

- Ensure that the cooling fans are correctly installed and running.
- Ensure that the correct thermal interface material or the thermal grease is applied to the processor.
- Ensure that the power supply fan is running.
- Ensure that the air intakes for the external fans are unobstructed.

### **Memory Issues**

If you have installed incompatible memory modules, the system may not boot. Verify the memory you've installed has been tested with your board (see Installing Memory on page 23 for details on valid memory configurations). If the installed memory is compatible, remove and reinstall the memory modules.

Defective memory modules may cause boot errors. One, two or three beeps at boot indicate defective memory. To isolate a specific memory module as defective, boot the system with just one memory module installed at a time.

### **Monitor Issues**

Monitor configurations can cause boot failure. Run through the following checklist to verify monitor operation:

- Ensure the monitor is plugged in and turned on.
- Ensure all cables are connected properly between the monitor and the computer.
- Check the brightness and contrast controls on the monitor are not too low.

Most monitors employ indicator LEDs showing status. Refer to the monitor's documentation to confirm operation. If the problem still persists, try replacing the monitor or test the monitor on a different AC outlet/different system.

### **Power Supply and Chassis Issues**

- Ensure that the chassis and power supply is appropriate for the processor model and frequency.
- A 2x4 CPU power connector is required for all Intel® Server Boards. Power consumption requirements for high-end video cards, sound cards, peripherals, and processors will exceed the typical 5A current capacity of standard ATX & SPX power supplies.
- Ensure all power cables and connectors are firmly connected to the power supply and the AC outlet.
- If the power supply or the AC outlet has an on/off switch, make sure that it is on and verify that the outlet is supplying current.
- Check for foreign objects inside the chassis such as screws that can short circuit connections.

### **Cable Issues**

Ensure that all cable connections, both internal and external, are attached correctly and securely.

### **Electrical Short or Overload**

Remove non-essential items such as extra controller cards or IDE/ATAPI devices to check for shorts and overloads. If the system boots correctly, there may be a short or overload associated with one of the components. Replace each of non-essential items one at a time to isolate which one is causing the problem.

If the problem occurs even after removing the non-essential components, the problem has to be with the server board, power supply, memory, or processor.

### **Defective Components**

Defective components, especially processor and memory, can cause system boot issues.

- Swap the memory modules with known good memory. Verify correct operation of the suspected memory in a known working system.
- Swap the processor with a known good processor. Verify correct operation of the suspected processor in a known working system.

## **System does not boot after configuration changes**

### **Hardware Changes**

If the system does not boot after making changes to hardware or adding new components, verify that the component installed is compatible with the server.

### **Software Changes**

If you recently installed new software or new device drivers:

Try booting into Safe Mode and uninstall the new software or driver. If you can now boot normally, there may be a compatibility issue between the new software or driver and some component in your system. Contact the software manufacturer for assistance.

### **BIOS Changes**

Changes to some advanced BIOS settings (such as those found in the SATA Configuration on page 56) can cause boot issues. Changes to Advanced BIOS settings should only be made by experienced users.

If the BIOS Setup Utility is accessible by pressing F2 during boot, reset the BIOS to factory defaults by pressing F9. Save and exit the BIOS Setup (see Exit Menu on page 68 for more details).

If you cannot access the BIOS Setup Utility, clear the CMOS by performing the following steps:

1. Power down the server. Do not unplug the power cord.
2. Open the server chassis (see Removing the Chassis Cover on page 17).
3. Move jumper (J24) from the default operation position, covering pins 1 and 2, to the reset / clear CMOS, covering pins 2 and 3.
4. Remove AC power.
5. Wait 5 seconds.
6. Move the jumper back to default position, covering pins 1 and 2.
7. Close the server chassis and power up the server.

The CMOS is now cleared and can be reset by going into BIOS setup.

### **Viewing System Event Logs for investigation**

If the front panel LED blinks for 30 to 60 seconds upon applying AC power to the power supply, the baseboard management controller (BMC) is initializing. If not, then the BMC is not functioning. If the BMC is working, try to gather system event log (SEL) information for investigation (see Event Logson page 77 for more information).

## **Installation Problems**

Perform the following checks if you are troubleshooting an installation problem:

- Check all cable and power connections (including all rack cable connections).
- Unplug the power cord, and wait one minute. Then reconnect the power cord and try again.
- If the network is reporting an error, see if the server has enough memory and disk space available.
- Remove all added options, one at a time, and try to power up the system. If after removing an option the server works, you may find that it is a problem with the option or a configuration problem between the option and the server. Contact the option vendor for assistance.
- If the system doesn't power on, check the LED display. If the power LED is not on, you may not be receiving AC power. Check the AC power cord to make sure that it is securely connected.

## **Troubleshooting External Connections**

Loose or improperly connected cables are the most likely source of problems for the system, monitor, and other peripherals (such as a printer, keyboard, mouse, or other external device). Ensure that all external cables are securely attached to the external connectors on your system. See ETegro Hyperion RS130 G3 Rear View on page 5 for the back panel connectors on your system.

## IRQ Assignment Conflicts

Most PCI devices can share an IRQ with another device, but they cannot use an IRQ simultaneously. To avoid this type of conflict, see the documentation for each PCI device for specific IRQ requirements.

IRQ Line	Assignment	IRQ Line	Assignment
IRQ0	System timer	IRQ8	Real-time clock
IRQ1	Keyboard controller	IRQ9	ACPI functions (used for power management)
IRQ2	Interrupt controller 1 to enable IRQ8 through IRQ15	IRQ10	Available
IRQ3	Default for COM2	IRQ11	Available
IRQ4	Default for COM1	IRQ12	Available
IRQ5	Remote access controller	IRQ13	Math coprocessor
IRQ6	Reserved	IRQ14	IDE CD drive controller
IRQ7	Reserved	IRQ15	Available

## AMI POST Errors and Beep Codes

### Test Points and Beep Codes

A checkpoint is either a byte or word value output to I/O port 80h. The BIOS outputs checkpoints throughout bootblock and Power-On Self Test (POST) to indicate the task the system is currently executing. Checkpoints are very useful in aiding software developers or technicians in debugging problems that occur during the pre-boot process. Beep codes are used by the BIOS to indicate a serious or fatal error to the end user. Beep codes are used when an error occurs before the system video has been initialized. Beep codes will be generated by the system board speaker, commonly referred to as the “PC speaker.”

### POST Code Checkpoints

The POST code checkpoints are the largest set of checkpoints during the BIOS pre-boot process. The following table describes the type of checkpoints that may occur during the POST portion of the BIOS:

Checkpoint	Description
03	Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialize CMOS as mentioned in the Kernel Variable "wCMOSFlags."
04	Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A. Initialize data variables that are based on CMOS setup questions. Initialize both the 8259 compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock."
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.

0A	Initializes the 8042 compatible Key Board Controller.
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of Keyboard in KBC port.
0E	Testing and initialization of different Input Devices. Also, update the Kernel Variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.
13	Early POST initialization of chipset registers.
24	Uncompress and initialize any platform specific BIOS modules.
30	Initialize System Management Interrupt.
2A	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs.
2E	Initializes all the output devices.
31	Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.
37	Displaying sign-on message, CPU information, setup key message, and any OEM specific information.
38	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
39	Initializes DMAC-1 & DMAC-2.
3A	Initialize RTC date/time.
3B	Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system.
3C	Mid POST initialization of chipset registers.
40	Detect different devices (Parallel ports, serial ports, and coprocessor in CPU, iK etc.) successfully installed in the system and update the BDA, EBDA;Ketc.
50	Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.
52	Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory.
60	Initializes NUM-LOCK status and programs the KBD typematic rate.
75	Initialize Int-13 and prepare for IPL detection.
78	Initializes IPL devices controlled by BIOS and option ROMs.
7A	Initializes remaining option ROMs.
7C	Generate and write contents of ESCD in NVRam.
84	Log errors encountered during POST.
85	Display errors to the user and gets the user response for error.

— *Support*

87	Execute BIOS setup if needed / requested.
8C	Late POST initialization of chipset registers.
8D	Build the ACPI tables.
8E	Program the peripheral parameters. Enable/Disable NMI as selected
90	Late POST initialization of system management interrupt.
A0	Check boot password if installed.
A1	Clean-up work needed before booting to OS.
A2	Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed.
A4	Initialize runtime language module.
A7	Displays the system configuration screen if enabled. Initialize the CPU <sub>i</sub> 's before boot, which includes the programming of the MTRR <sub>i</sub> 's
A8	Prepare CPU for OS boot including final MTRR values.
A9	Wait for user input at config display if needed.
AA	Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module.
AB	Prepare BBS for Int 19 boot. AC End of POST initialization of chipset registers.
B1	Save system context for ACPI.
00	Passes control to OS Loader (typically INT19h).



## Beep Codes

The following table describes the beep codes that are used in boot block:

Number of Beeps	Description
1	1 beep if no media
2	2 beeps for boot-block bios file absent
3	3 beeps for insert next diskette in A:
4	4 beeps for flash program successful
5	5 beeps for read file error
7	7 beeps for no flash present
8	8 beeps for floppy controller error
10	10 beeps for flash erase error
11	11 beeps for flash program error
12	12 beeps for wrong bios file size
13	13 beeps for ROM image mismatch
14	1 long beep after 4 beeps for BIOS recovery by jumper

## Jumper and Connectors

The following table shows the location of the jumpers on the mainboard.

Location	Default Setting	Function
J21	1-2	<b>Password Setting</b> 1-2 : Protect (Default) 2-3 : Clear
J24	1-2	<b>CMOS Setting</b> 1-2 : Hold(Default) 2-3 : Clear
JP2	Open	<b>BMC Disable</b> 1-2 : Disable BMC <b>Open : Enable BMC (Default)</b>

## BMC Firmware Update Utility

The BMC (Baseboard Management Controller) firmware update utility is a DOS-based program used to update the BMC firmware code. This utility should only be run if new firmware code is necessary.

### BMC Firmware Update Procedure

There are two means to update BMC Firmware. User can update BMC Firmware from WebUI or DOS. Before proceeding, read the BMC firmware release notes to determine which update utility version is appropriate for the new firmware version.



**Note:**

Please AC off and on after update BMC Firmware.

#### Using WebUI to update BMC Firmware

1. Login into BMC web via web browser, go to **Maintenance**→ **Firmware Upgrade** and click **Enter Upgrade Mode**.
2. Select the file “**S98vxxx.bin**” to update.
3. The server reboots after the upgrade is complete.

#### Using DOS to update BMC Firmware

1. Copy the BMC firmware update utility **bmcfu.exe** and BMC firmware image file **S98vxxx.bin** to an easily accessible location such as remote HDD or USB key. Then Boot ETegro Hyperion RS130 G3 into DOS mode.



**Note:**

Do not use memory management utilities in the DOS environment during the firmware update procedure. Management utilities may cause the firmware update procedure to fail.

2. In **Upgrade Mode**, use the following command to upgrade the firmware.  
***bmcfu.exe S98vxxx.bin***
3. Press the **Enter** key.
4. Download displays a message during the flash in progress. The server reboots after the upgrade is complete.
5. When the server restarts, in the Web Server, go to **System Information**→ **Version**→ **BMC Version** and check the firmware version matches the update file version.

## BIOS Firmware Update Utility

The BIOS (Basic Input and Output System) Firmware update utility is a Web/DOS-based program used to update the BIOS firmware version. This utility should only be run if new firmware version is necessary.

### BIOS firmware Update Procedure

There are two means to update BIOS firmware. Users can update BIOS firmware from WebUI or DOS. Before proceeding, read the BIOS firmware release notes to determine which update utility version is appropriate for the new firmware version.



**Note:**

It is important to follow the flash options provided in the batch file (F.BAT) to update BIOS. Using incorrect flash options to flash BIOS may cause damage to your system.

#### Using WebUI to dupate BIOS firmware

1. Login into BIOS web via web browser, go to Maintenance BIOS update and click Enter Update Mode.
2. Select the “3Axx.iso” to update.
3. After the update is complete, please reboot and press F9 under BIOS to load the default values.
4. It is necessary to reopen advanced tool to load the latest status.

#### Using DOS to update BIOS firmware

1. Copy the AFUDOS.EXE, BIOS ROM and batch file to an easily accessible location, such as remote HDD or USB key. Then execute F.BAT under a DOS environment and BIOS updates automatically.
2. After the update is complete, please reboot and press F9 under BOS to load the default values.



**Note:**

AFUDOS will not update ME F/W.

### Power Consumption Management Function

The power consumption management function is based on the Intel® Dynamic Power Node Manager (DPNM) technology which allows for the setting of power consumption when a CPU is under load—available in the Tylersburg and next generation of server platforms. DPNM provides a way to monitor and manage power consumption. The ETegro Hyperion RS130 G3 power consumption function is only available on the 650W redundant PSU server models.

#### Requirements:

The following is a list of requirements; check your server UM for the latest specifications:

- PSMI interface
- BIOS ME enabled function
- Feature must be available in Web UI

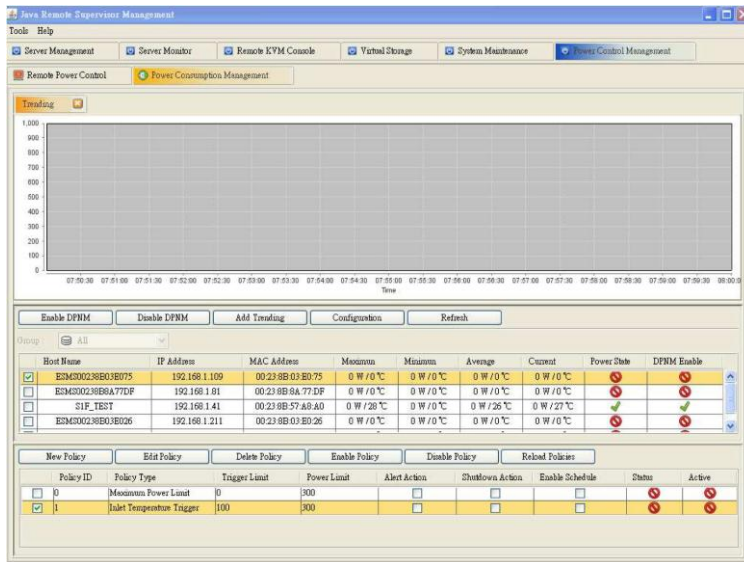
The DPNM technology is capable of balancing power consumption against performance in deployed Intel Nehalem generation servers. The actual power consumption savings obtained depend on the server configuration: memory, number of installed hard drives and the number and type of processors.

#### Note:



To be able to use Power Consumption Management, make sure the selected Power Supply can support PSMI (Power Supply Management Interface) or PMBus (Power Management Bus).


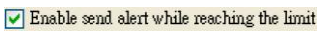
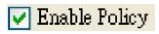

Power Consumption Management is only available in the 650W redundant PSU server models.



Item	Description
Enable DPNM	Enable or Disable DPNM policy control mechanism.
Disable Policy	If the state of the selected policy is disabled, all defined power budget management policies are not implemented.

Item	Description
Add Trending	To record the current power consumption value of selected target host to the graph.
Configuration	Open the current power control policy configuration on the above policy configuration list table.  <b>Note:</b> Policy Configuration is only accessible when the DC-state is ON. After DC-state is activated, a waiting period is required to receive information from the remote ME.
Refresh	Select to acquire remote BMC hosts and view if they support DPNM.
New Policy	Select to create a new policy—predefined values are available.
Edit Policy	Modify the current selected policy configuration.
Delete Policy	Delete the selected policy configuration.
Enable Policy	Enable or disable the state of selected policy. If the state of the selected policy is disabled, the configuration of the policy is not implemented.
Disable Policy	
Reload Policies	Reload configuration policy from a remote ME.

Item	Description
PolicyType Power Limit with inlet temperature trigger	Select from two policy types, Simple Power Limit and Power Limit with Inlet Temperature trigger. <b>Simple Power Limit Policy:</b> Power limit control trigger is based on assigned power budget value. <b>Power Limit with Inlet Temperature Trigger:</b> Power limit is based on assigned upper bound values of the chassis
Power Budget Limit 1 [1 ~ 32767 Watt]	Assign the total budget limit (Watts). The range differs from project to project.

Item	Description
	Assign a temperature upper bound value to trigger the power limiting function.
	Check to send alert when power limit is reached.
	Check to enable defined policy.
	<p>Select the default or user defined Correction Time Configuration values.</p> <p>Assigned value limits as defined in the ME policies allow for the following actions to take effect:</p> <ol style="list-style-type: none"> <li>1. Set the Correction Time Limit (6000 to 600000 ms)</li> <li>2. Send Alert Action</li> <li>3. Shutdown the system.</li> </ol> <p><b>Note:</b> Correction time limit range is different between projects.</p>

## Appendix D Specifications

Component	Feature	Description
Form Factor	SSI EEB 2.0, 12" x 13", 1U thermally optimized	
Processors	Two FC-LGA 1366 socket support	Intel QuickPath, Interconnect 6.4 GT/s for CPU Bus, Nehalem-EP 2S
Chipset	Tylersburg-36D	<ul style="list-style-type: none"> <li>Intel Quick Path Interconnect up to 6.4GT/s</li> <li>DDR3 – 800/1066/1333 MHz (3 Ch/CPU)–1Gb, 2Gb technology.</li> <li>Total 36 PCI Express Gen2 lanes.</li> </ul>
	ICH10R	<ul style="list-style-type: none"> <li>Serial ATA II (3Gb/s) x 6</li> <li>USB 2.0 ports x 4 (Front x 2, Rear x2)</li> <li>LPC interface</li> <li>PCI Express 4 lanes for on board dual GbE LAN chip</li> </ul>
Memory	Twelve DDR3 DIMM slots	<ul style="list-style-type: none"> <li>DDR3 800/1066/1333 RDIMM, UDIMM</li> <li>Support up to 96GB (max)</li> </ul>
PCI-E	PCI-E x16 slot	One PCI-e x16 Slot with PCI-e x16 Gen2 Signaling
SATA/SAS	SATAII (6 channels) /LSI 1064E SAS controller	<ul style="list-style-type: none"> <li>Supports Serial ATAII Ports x6</li> <li>SAS ports x4 (option)</li> </ul>
VGA	ASPEED AST2050	<ul style="list-style-type: none"> <li>One (1) DB-15 VGA Connector</li> <li>Supports resolutions up to 1600x1200 16bpp @ 75Hz</li> <li>DDR2 memory supports up to 128MB</li> </ul>
LAN	Intel LAN82576 Intel LAN82574L	Two (2) 10/100/1000 Base-TX One (1) 10/100/1000 Base-TX (Management port)
Super I/O	Winbond W83627DHG	COM1
FAN	Chassis FAN x6	Speed detectable with PWM control
ROM	SPI Flash BIOS	32M bits
ACPI	ACPI compliance: S0, S1, S4, S5	* NO S3 (STR)
Front Panel	3.5"Chassis	USB 2.0 x 2, Power Button + LED x 1, ID Button x 1, ID LED x 1, HDD Active LED x 1, Sys Status LED x 1, LAN LED x 3, Reset Button x1
	2.5"Chassis	Power Button + LED x1, ID Button + LED x1, Sys Status LED x1, LAN LED x2
Monitor	On board AST2050, BMC,KVM Over IP	Main Logic Board Sensors: <ul style="list-style-type: none"> <li>Voltage Power Good Detection</li> <li>CPU and System Temperature Detection</li> <li>FAN Speed Detection</li> <li>FAN Speed Control</li> </ul>
Form factor	1U System	W 430.0 mm (16.93") x D 706 mm (27.8") x H 43.2 mm (1.70")
POWER	650W PSU with 80 plus	
	Acbel 500W PSU with 80 plus	
System Rating	100-127/200-240Vac, 6.3/3A, 50/60Hz	



**Note:**  
The following CPU types are supported:  
Intel® Nehalem-EP Series Processors